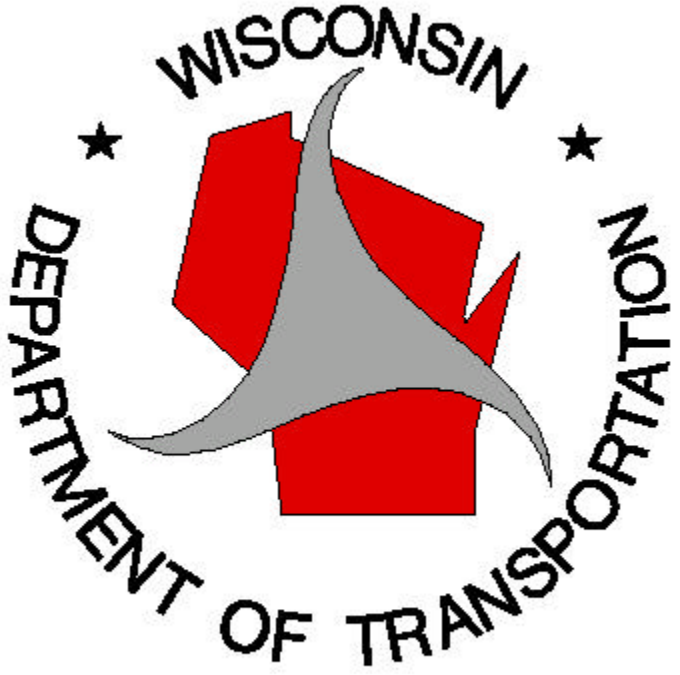
ASPHALTIC PAVEMENT WARRANTIES



FIVE-YEAR PROGRESS REPORT

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ASPHALTIC PAVEMENT WARRANTIES

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EXECUTIVE SUMMARY

In 1995, the Wisconsin Department of Transportation (WisDOT) and the Wisconsin Asphalt Pavement Association had developed and began constructing asphaltic pavements with a warranty specification. By the end of 2000, 24 asphaltic warranted pavements were constructed. The warranty period is five years and requires the contractor to perform remedial (corrective) work whenever a distress threshold is exceeded. The warranty specifications are based upon specific pavement distresses (rather than ride or any other factor). Distress thresholds were established at levels, which WisDOT's pavement management system indicated were typical for five-year old asphaltic pavements.

Based upon five years of experience, the warranted pavements are performing better than typical pavements, considering ride values and all distress factors. For example, the typical international roughness index (in meters per kilometer) for a standard asphaltic pavement at five years of age is 1.45, while the warranted at five years averages 0.94 - significantly better. The Pavement Distress Index (PDI) for a standard asphaltic pavement at five years is 26 while the warranted at five years averages 9.

The costs figures required to make a comparison between the warranted and standard projects are difficult at best to determine. However, based upon limited data and considering all factors, warranted pavements cost less per ton than standard projects. Accordingly, warranty projects are cost-effective since they cost less and perform better. Warranties appear to be a superior means for delivering asphaltic pavements to the public.

Warranties have reduced State construction delivery costs. Warranty projects require less supervision and testing than a standard asphalt project, thereby reducing the State's delivery costs.

No distress thresholds have been exceeded, which means no remedial work (warranted) has been performed.

Warranties have allowed contractors to be innovative in quality management, construction practices, use of additives, etc. In addition, warranties have proven to be an innovative means for contract administration.

For future warranty projects, industry and WisDOT are considering the possibility of "tightening-up" the performance criteria for the same five-year time period, or, allowing the performance criteria to remain the same but increasing the warranty period. Either change in the warranty specifications would tend to assure an even better quality, longer lasting pavement.

An incentive provision could be made to reward the contractor for an exceptionally good performing pavement. The incentive provision would help assure the customer of a superior pavement while giving the contractor the incentive to provide it. The reward for such a provision could be monetary or a reduction in the warranty period once the exceptional performance is documented.

ASPHALTIC PAVEMENT WARRANTIES

FIVE-YEAR PROGRESS REPORT

INTRODUCTION

The Wisconsin Department of Transportation began building asphaltic concrete pavements with a warranty specification in 1995. By the end of 2000, 24 asphaltic warranty projects had been built. The purpose of this report is to briefly discuss the progress of this program in order to:

A. keep interested parties informed of the progress of this new initiative,

B. see if modifications to the warranty program are needed, and

C. help chart the future use of warranties.

BACKGROUND

In the past, when WisDOT operated under traditional method specifications, asphaltic concrete (AC) pavement contractors were told what materials to use and how to produce and place hot mix asphalt. Wisconsin's state highway engineers were involved in all stages of road building and maintenance. They developed the formula for everything that went into the construction of the roadway and posted inspectors on the job site to manage the construction and assure that contractors built it to exact specifications (materials and method specifications). However, rapid advancements and changes in the asphaltic concrete pavement industry began in the late 1980's. By 1994 WisDOT was operating under a very comprehensive quality control/quality assurance (QC/QA) program. This program was the beginning of a shift in responsibility for the product from WisDOT to the contractor. The QA/QC program required product quality testing to be performed by the contractor (QC), with WisDOT doing a limited amount of testing for verification purposes (QA). A logical progression in AC pavement specifications was the development of warranty specifications.

Prior to 1991, FHWA had a long-standing policy that restricted the use of warranties on Federal-aid projects to electrical and mechanical equipment. The rationale for the restriction was that a warranty requirement might indirectly result in Federal-aid funds participating in maintenance costs - - the use of Federal-aid funds for routine maintenance is prohibited.

Under Special Experimental Project No. 14 (SEP 14), *Innovative Contracting Practices*, FHWA approved state-proposed warranty concepts which encouraged improved quality and contractor accountability without shifting routine maintenance to the contractor.

The warranty Final Rule was published in the April 19, 1996, Federal Register. Following the Final Rule publication, warranties are no longer considered experimental for National Highway System (NHS) projects. With the FHWA Division Administrator's concurrence, a state may include a warranty for a project on the NHS. For Federal-aid projects off of the NHS, warranty clauses may be used in accordance with state procedures and no FHWA approval is required.

In early 1994, the development of an asphaltic concrete warranty specification began as a cooperative effort between WisDOT, the Wisconsin Asphalt Pavement Association (WAPA) and the Wisconsin Division Office of the Federal Highway Administration (FHWA). From the onset, the three parties agreed to pursue a fresh, non-restrictive approach to the warranty concept. The team came to several common understandings.

- The warranty process allows WisDOT to define the final product in terms of condition and performance.

- Warranties offer the potential for improving quality and reducing state project delivery costs.

- There are shared risks – WisDOT has the risk of less than desired pavement performance and the contractor has the risk involved in remedial-corrective work.

- The contractor should decide how to construct the pavement.

It was also determined that warranties offer contractors greater opportunities to use cost effective means to perform the work and the freedom to try innovative methods. Thus, under the warranty concept, the contractor becomes a full partner in the road building process.

The first warranted projects were built in 1995 and the process has continued each year since. On warranty projects the contractor is responsible for the asphaltic mixtures (including mix design, materials, quality control, and construction) and any required warranty work for a period of five years following the opening of the pavement to traffic. Under newer warranty contracts the contractor also assumes responsibility for crack sealing during the first five years.

PURPOSE

The purpose of WisDOT's warranty specification is as follows:

1. To focus evaluations on actual performance of the final product; not on ingredients, the process or surrogate tests for performance.

2. To begin focusing performance evaluations not only on the final product, but on factors considered important by the highway user.

3. To continue to strive for the goals of high quality highways, built on time and at a reasonable cost.

4. To foster contractor freedom to be innovative and creative, while maintaining WisDOT performance standards.

5. To lower WisDOT project delivery costs by reducing testing, supervision and staff involvement in the construction process.

6. To progress from method specifications and from the QC/QA concept to end result, performance-based specifications. Thus, WisDOT will let the contractor know what performance is desired and the contractor will decide how to accomplish it.

7. To gain experience in the elements of warranty specifications, such as bond requirements.

8. To help the national effort by exploring innovative specifications and alternative contracting methods.

9. To enhance pavement quality.

10. To shift product responsibility from WisDOT to the contractor.

INTENTS AND CONSTRAINTS

The intention of the warranty effort is to give the contractors as much freedom as possible while assuring a quality product. Thus, the warranty specification allows contractors to select their own materials, mix design, quality management program, construction techniques, inspection, etc. It is further intended to hold contractors responsible for acceptable pavement performance for five years, but not to hold them responsible for factors/conditions beyond their control. The intent of this effort is to relieve WisDOT of construction inspection and quality assurance testing, and, instead, to concentrate its efforts on evaluating the final product.

There are several necessary constraints upon the contractor. WisDOT specifies the location of the projects, the schedule for completion, the thickness of the pavement, and the type of base. The pavement thickness and type of base are specified so that each project could be bid on an equal basis within the low-bid environment.

In essence, the warranty process incorporates the concept of paying the contractor to take a certain, but reasonable, risk. For the first projects the risk for both parties was minimized by mutually selecting projects where the potential for success was high, i.e. good subgrade. WisDOT's risk includes paying more for a pavement that has performance similar to that of the past. After that a selection process was developed and put into practice that screens projects for their eligibility for a warranty pavement.

Currently, this is the method that the District pavement designers use to decide to warranty a pavement.

ANALYSIS OF BIDS

WisDOT performs a bid analysis and review after the project letting and prior to award of contract. A few warranty project bids have not been awarded due to the fact that the low bid was substantially higher than what had been estimated for the project. For all warranty projects, a close inspection of the bid price and the engineer's estimate reveals that the Asphaltic Pavement Warranted item is most often the major difference between both total amounts. These result should be expected given WisDOT's lack of experience in estimating the risk associated with a paving project.

QUALITY MANAGEMENT ISSUES

Specification Changes

The original specification was drafted in the fall of 1994 and the first projects were let to bid in the winter and spring of 1995. The same specifications were used on the 1996 projects for AC over a granular base. The specifications were expanded to include warranted asphaltic pavement over jointed concrete pavement for a project that was constructed in 1997. In 1997 the specification was changed to include a provision that the contractor was responsible for routing and sealing of all cracks in the summer of the third year. In 1998 the route and seal provision was changed from the third to the fourth year. In 1999 the specification was changed to include ancillary pavements. Ancillary pavements are defined as all other asphaltic pavements, except the mainline pavement. The other revision that is being considered for the future is to add two to five years to the warranty period (using the existing thresholds), or, to leave the warranty period at five years but to "lower" the threshold values.

Possible Variations of the Warranty Concept

Alternate bids could be tried where all projects would be bid conventionally and with a warranty. Under this plan, WisDOT would award the project based on the conventional bid and decide whether or not they wanted to buy the warranty.

Quality Control and Independent Assurance Testing (IAT)

It is the contractor's decision on the course of action for quality control and assurance. In most cases, the contractor initially ran QC much the same as a conventional project. However, in some cases the testing frequency was reduced after production stabilized. The reduction in testing frequency was a function of the risk involved and the confidence level in the consistencies and quality of the plant and construction operations. WisDOT did not conduct formal independent assurance program inspections on any warranty projects.

PAVEMENT PERFORMANCE

The warranty specification contains thresholds for visible distress, a copy of the specification is provided in Appendix A. These thresholds are based on statistical analyses of pavement performance data. If a threshold is reached the contractor is responsible for conducting the specified remedial action for five years. The thresholds are based on historical data from Wisconsin's Pavement Management System. The thresholds were set at levels that were typically (historically) attained by AC pavements in Wisconsin. A key evaluation criterion is tracking how the warranty projects are performing in relation to this historic database.

The 2000 performance data for the 18 projects constructed from 1995 to 1999 is summarized in Appendix B, with project specific data shown in Appendix C. Of the 24 AC warranty projects constructed to date 23 of them are pavement type 1 (AC over flexible base). The one project is a type 3 (AC over PCC).

Distress information is collected annually on each warranted pavement between April and May as per the specification. Distress evaluations are then conducted in the WisDOT Pavement Monitoring Lab. Pavement distress values are not pay items, but they do establish whether or not a threshold has been exceeded and whether or not remedial action is required under the warranty. These values are also used to monitor pavement performance over time. For general performance monitoring, individual distresses are collectively incorporated into the Pavement Distress Index (PDI) which ranges from zero (perfect condition) to 100 (worst possible condition). A plot of PDI over time is a useful tool for assessing pavement performance.

Ride information is collected at the same time the distress information is collected. Ride evaluations are made annually for each warranty pavement. Ride is neither a pay item, nor is any remedial action required based on ride measurements. Ride is measured with WisDOT's Video Distress van over a nominal one-mile section of pavement and reported as International Roughness Index (IRI) in metric units (m/km). IRI ranges in value from zero (perfect ride) to an indefinite upper-end (four is considered a very rough ride).

Overall Evaluation

In appendix C, the specific distress and ride data is shown for each section of each project. In addition, the threshold limits are shown for each distress. Transverse cracking (TRANSCR) and longitudinal cracking (LONGCR) are the only two distresses with any entries. As an aid in understanding Appendix C, consider a three in the TRANSCR column - - this means there are three cracks in that segment. When there is no entry in a distress column that means no distress was noted during the survey (showing all the zeros would make the report needlessly difficult to read).

Distress thresholds have not been exceeded on any project. In fact, all projects are well below the threshold limits. Sometimes a couple of transverse cracks will show a PDI rating of zero, this means the cracks were narrow and had no band cracking (multiple

cracks close to, and running parallel to, the main crack). Sometimes a single transverse crack will show a PDI of four, this means the crack is more than a simple, narrow crack.

A summary of overall comparative pavement performance is shown below.

Type 1 Pavements

Performance	Pavement	Age				
Indicators	New	1 year	2 years	3 years	4 years	5 years
State Average IRI – Non Warranty	1.11	1.17	1.29	1.33	1.37	1.45
Average IRI - Warranty	0.81	0.87	0.89	0.89	0.94	0.94
State Average PDI – Non Warranty	0	5	11	16	21	26
Average PDI - Warranty	0	1	2	6	12	9

Based on the values shown above, the average distress performance of the warranted pavements over five years is better than historic distress performance. The ride values are significantly better than historic performance of non-warranted pavements. This can be an important consideration since it relates directly to customer expectations and possibly an extended pavement life. Figures 1 and 2 show a bar chart of the performance data.

Assessing Cost Effectiveness

The typical type 1 asphaltic pavement (heavy or medium volume mix) in Wisconsin has an expected life of approximately 18 years at which time the PDI will be in the 60 to 75 range and the IRI will average approximately 2.5. Distress (not ride) generally controls the life of an AC pavement.

Figure 1 PDI values of Non-Warranty vs. Warranty Pavements

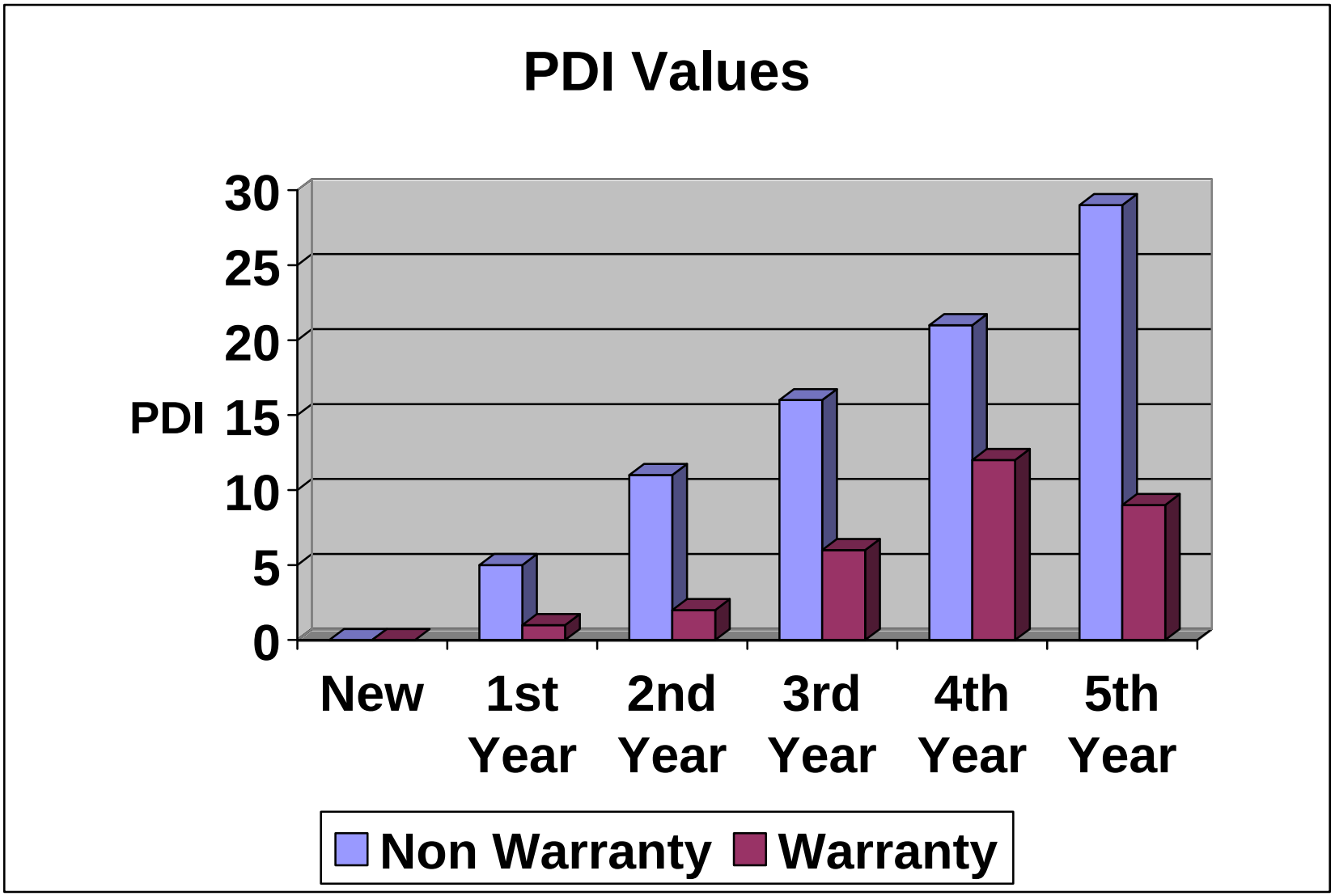
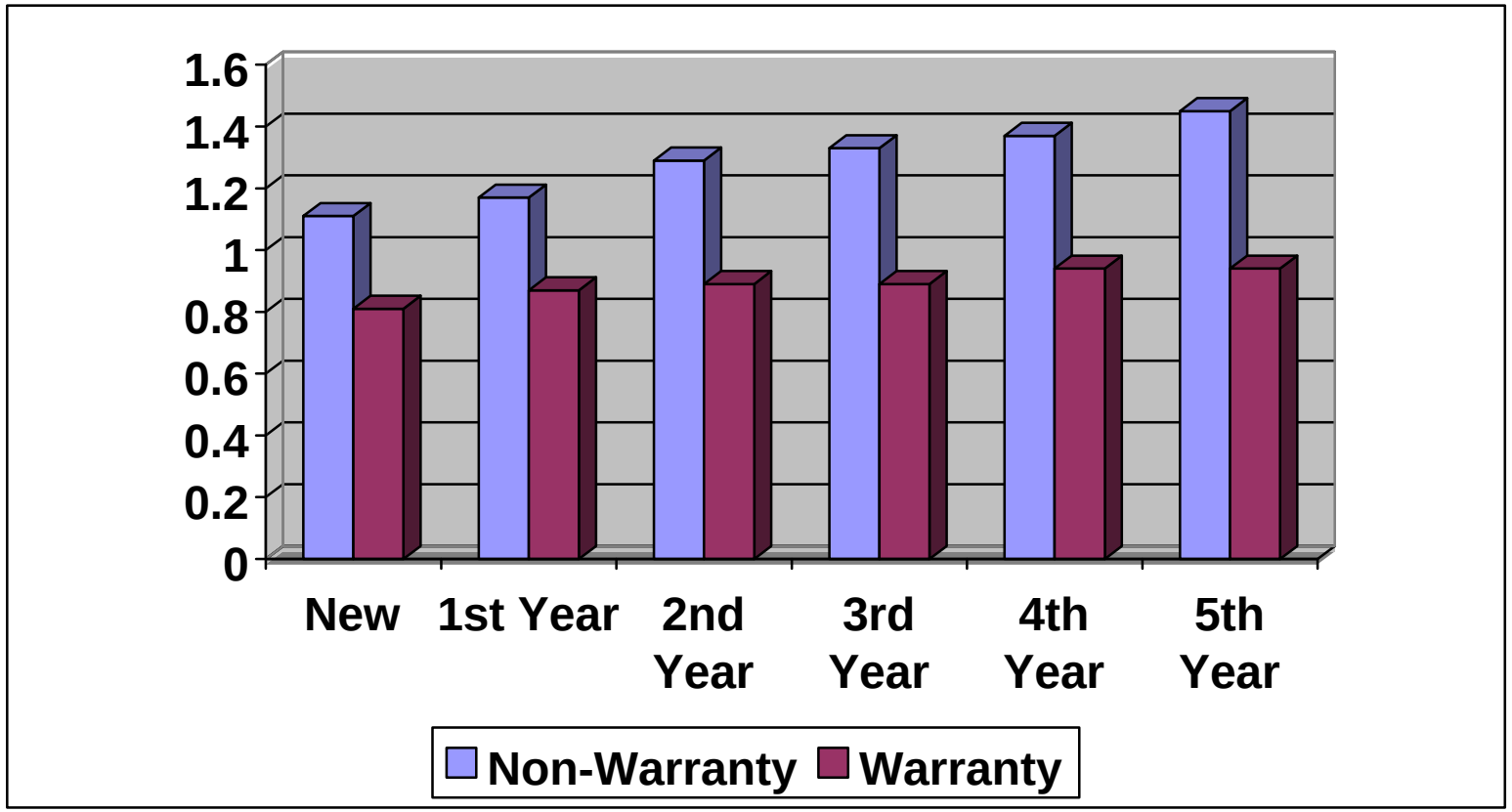


Figure 2 IRI Values of Non-Warranty vs. Warranty Pavements



Assessing cost effectiveness of a warranty program is difficult until such time that there is sufficient performance data to indicate long-term trends. Until such trends are developed, the performance of warranty projects can merely be plotted in comparison to typical pavements in order to get a "glimpse" of comparative performance. The extra "benefit" delivered via warranty, Figures 1 and 2, can ultimately be compared to the project costs to see if warranties are cost-effective. Of course, such an analysis has to include all the "other" costs experienced by WisDOT and the contractor during the first five years of pavement life in order to make a valid comparison.

A listing of cost factors required to make a valid (apples to apples) comparison is shown below.

Cost to be Included in Standard Contracts

1. Mixture bid price
2. Asphalt bid price
3. Tack coat bid price
4. Quality management bid price
5. State delivery costs
6. State maintenance costs for 5 years
7. Conflict resolution (found to be negligible, so not considered from here on)

Costs to be Included in Warranty Contracts

1. Asphalt pavement warranted bid price
2. Training and use of conflict resolution team costs (found to be negligible, so not considered from here on, has never been used)
3. State delivery costs (reduced from standard contracts)
4. Extra distress surveys and reports for warranties (found to be negligible, so not considered from here on, eventually warranties will be collected on the normal statewide cycle and there will be no additional cost)
5. Extra tests for disputes, traffic counts, etc. (found to be negligible, so not considered from here on)

WisDOT is gathering data to refine and enable this comparison in future years. For the present, the comparison is based upon the following.

The worth of the preventive maintenance (crack routing and sealing at four years of age):

> WisDOT's Pavement Management System indicates a typical AC pavement will have approximately 8000 linear feet of cracking (longitudinal and transverse) per roadway mile at four years of age. Routing and sealing typically cost WisDOT $1.20 per linear foot, or $10,000 per roadway mile ($5,000 per lane mile). For a five-inch pavement thickness this translates into **$2.07/ton** for crack routing and sealing once in the five year period.

Thus, the cost estimates required for a comparison are:

1. State maintenance costs for 5 years (5-inch thickness).

    a) Crack routing and sealing ---------- $2.07/ton

2. Quality Management bid prices ---------- $0.60/ton

3. State construction delivery costs ---------- $0.32/ton

Simply put, the comparison of costs can be made as follows (with and without a delivery cost savings for the warranty projects – if applied, the difference in delivery costs is added to the standard).

Standard Contracts 1995 to1999 (medium volume mix)

1. Mixture bid + Asphalt bid + tack coat bid ---------- $25.05/ton
($17.03/t + 5.5% x $142.18/t + $0.20/t)
(average values statewide for projects of similar size in 1995 thru 1999)

2. Quality Management ---------- $0.60/ton
3. State Maintenance ---------- $2.07/ton

STANDARD TOTAL (w/o delivery costs) = $27.72/ton

STANDARD TOTAL (with delivery costs) = $28.05/ton

Standard Contracts 2000 (medium volume mix)

4. Mixture bid + Asphalt bid + tack coat bid ---------- $28.58/ton
($17.80/t + 5.5% x $192.19/t + $0.21/t)
(average values statewide for projects of similar size in 2000)

5. Quality Management ---------- $0.60/ton
6. State Maintenance ---------- $2.07/ton

STANDARD TOTAL (w/o delivery costs) = $31.25/ton

STANDARD TOTAL (with delivery costs) = $31.57/ton

Warranted Contracts 1995 to 1999

1. Asphalt Warranted bid price (average of 18 projects) ---------- $24.34/ton

WARRANTED TOTAL $24.34/ton

Warranted Contracts 2000

2. Asphalt Warranted bid price (average of six projects) ---------- $29.45/ton

WARRANTED TOTAL $29.45/ton

The cost analysis was broken into two separate categories 1995 to 1999 and 2000. The reason for this was to account for a large in increase in asphalt prices and also reflect the addition of ancillary pavements to the warranty in 2000.

Not considering construction delivery costs, the standard projects averaged $27.72/ton versus $24.34/ton for the warranted for the period from 1995 to 1999. Considering an estimated delivery cost, the standard projects averaged $28.04/ton versus $24.34/ton for the warranted for the period form 1995 to 1999. It is obvious that the warranted projects cost less per ton.

In conclusion, the warranty projects **cost less** per ton than standard projects and the difference appears significant. For the first 24 warranty projects, the available data indicate warranties are cost-effective – they not only cost less, but they also produce a better performing pavement. However, it should be noted that there have been a few warranty project bids that have been rejected due to differences between the engineer's estimate and the bids. See Analysis of Bids section of this report, page 4, for more detail.

Life Cycle Cost Analysis

Using performance data collected to date on warranty pavements and then applying deterioration models we are able to predict the longevity of the warranty pavements. Once that is completed a life cycle cost analysis can be performed to determine the cost benefits of warranties over the life of the pavement. The methodology is as follows:

- Performance and cost data is collected, analyzed and averaged (weighted averages) to establish a baseline or trend.
- The performance and rehabilitation models are run using the warranty baseline and a life expectancy is established.

- A timeline of expenditures is created for a warranty pavement out to 50 years, which is the DOT's standard.
- Then all costs are or expenditures are brought back to present worth.

Once a life cycle cost is developed in present worth dollars of warranty pavements a comparison can be made to the life cycle cost of a standard asphaltic pavement. Using the previously described methodology it has been determined that even at an initial cost of up to 7% greater, warranty pavements are still more cost effective than standard pavements.

Possible reasons why warranties cost less are:

1. The first nine warranty projects constructed had been carefully selected by WisDOT and industry to assure a win-win situation. However, the other 15 warranty projects were selected using the warranty selection criteria, which screens projects for their eligibility as a warranty project. The warranty selection process requires adequate subgrade support and incorporation of the correct subgrade design value into the pavement design. High-risk projects, i.e. those with poor subgrade support values have not been selected for warranties. On a side note, the DOT has implemented a new subgrade improvement initiative that should increase the number of projects that meet the warranty selection criteria.

2. Contractors have employed good materials science and construction practices along with a philosophy of quality production. Thus, good science, craftsmanship and skilled administration by the contractors seems to be more effective in producing a quality product than State supervision, inspection and testing. The state can not inspect/test for quality in a pavement. We can only prescribe tests that approximate quality.

3. There are cost savings inherent in removing prescriptive QC/QA procedures and eliminating State inspection, enabling the contractor to concentrate efforts on project specific needs rather than routine tests/inspections that are generic in nature.

Perhaps a better estimate of costs would be to consider all costs per mile of pavement rather than a per ton cost. The per mile costs would include mobilization, base course, etc., and would possibly represent a more reliable evaluation.

FHWA PERSPECTIVE

Historically, warranties have been used successfully in other countries and by some local governments on Non-Federal projects to protect highway investments from early failure. In the early 1990's FHWA initiated Special Experimental Project No. 14 (SEP-14). The objective of SEP-14 was to evaluate and document innovative contracting practices that have the potential to reduce the life cycle cost of projects, while at the same time maintaining or improving product quality. One of the innovative contracting practices with great potential is asphalt warranties. Since 1995 when the initial three asphalt warranty projects were let under SEP-14, WisDOT has let an additional 21 asphalt warranty projects using essentially the same performance criteria. FHWA believes that

both the objectives of SEP-14 and WisDOT's purpose in developing an asphalt warranty specification have been met and that warranties provide a benefit to WisDOT and the asphalt contracting industry.

The performance criteria for warranted projects were based on pavement management distress data for similar type projects. In other words, the performance criteria used to date is based on distress threshold levels equal to what would be expected for a well-constructed asphalt pavement. Now that the State and industry have gained experience in the use of warranties, the FHWA Division Office supports incorporation of asphalt warranties into the state's standard project development procedures, development of guidelines for appropriate use of warranties and evaluation of warranty thresholds and extending the length of warranties.

WISCONSIN INDUSTRY PERSPECTIVE

Some of the perspectives and concerns of the asphalt industry with warranties are shown below.

- The contractors would like to know if all the distresses that are measured now predict pavement performance or are there only a few that need to be measured? Presently WisDOT evaluates warranted pavements for: Alligator cracking, Block cracking, Edge raveling, Flushing, Longitudinal cracking, Distortion, Rutting, Raveling, Patching and potholes. WisDOT believes all these distress factors are essential for a comprehensive warranty to protect the public interest.

- There appears to be a lack of acceptance of warranty contracts by the designers. From the contractor's point of view, it appears that this may be an obstruction. WisDOT believes the problem is often timing, i.e., many projects were designed before warranties were implemented. As time passes and with some training, warranties should come to be more commonplace and be designed into the project.

- Not all projects are suitable for warranty. Warranty projects can become too expensive when design parameters are not placed on warranted projects. The concern is that the warranty has to be designed into the project not added on to it. If it is not designed into a project and the conditions are not correct, the contractor has to increase the price to defend against failure (which would add dollars to repair costs).

- It must be kept in mind that the Hot Mix Asphalt industry can only warranty the product that they directly produce. One of the concerns with Asphaltic Pavement Warranted is that the paver is not responsible for the subgrade, which is an integral part of the pavement structure. Asphalt pavers are concerned that a poor subgrade can cause a failure in the best of pavements and in most cases the paving contractor has no control over the subgrade. The

fact that the warranty specification is designed to not hold the contractor responsible for such occurrences is helpful, but may not be the total solution.

· How long will it be until the industry and WisDOT feel that a five year warranty should be extended or the threshold distress levels be changed? Contractors are looking to revise the specification including adjusting the warranty length.

· Warranty projects have promoted the team concept among the contractor's employees. The results are an improved quality product. You can not inspect quality into a project. You must produce quality. In the warranty projects the contractor's employees and subcontractors are more aware of the value of their phase of the paving process and greater attention is paid to producing a quality project.

· When needed, the contractor can react immediately to a change in the process. This quick reaction time helps produce a quality product. The contractor is responsible for the product. With this philosophy the contractor can make adjustments when necessary, saving time and money.

Industry Innovation on Warranty Projects

- Predicting durability of the mix design before producing the pavement, i.e., testing using the Georgia Loaded Wheel Tester, Homberg Tester and Superpave Level III testing helps the contractor to make adjustments without needing approval from the state agency saving valuable time and money.

- Using mix designs that require better materials than meet present WisDOT specifications.

- Closer tolerance in monitoring of the quality control process. The contractor is totally responsible for the product including quality control.

- Contractor quality assurance (QA) of all control systems. The contractor is totally responsible for the product and it's quality.

- Subcontractors and suppliers are required to meet strict specifications. Responsibility is distributed to all that have an interest in the product not just the paving contractor.

- Risk sharing with subcontractors and suppliers. The contractor now has to look at the best sub- contractor not necessarily the low bid.

- Rubblizing concrete pavement instead of the planned base patching with asphalt or concrete. Warranties allow for contractor innovation, for example, experimentation with a rounded sand interlayer to retard reflective cracking

and use of different combinations of polymers, additives and performance graded asphalt to see which performs the best.

- After using innovative construction procedures, the contractor tracks and monitors performance for the following years to see what process is cost effective and what is not.

- Scheduling the work progress, when possible so that traffic can use lower lifts of pavements before the final lift is put down. This tests pavement and grade performance immediately before the project is finished.

WisDOT PERSPECTIVE

A warranty contract is a positive direction for both WisDOT and the contractors. We have seen more awareness on the part of the contractor for both quality of workmanship and quantity of personnel, machinery, and material. For example, the contractor has taken more initiative in determining where additional material is most beneficial with stringlines, profilograph, and visual inspections prior to placement of the binder and surface courses. Other observations include:

1. Contractor had four rollers on the project to start the warranty work, and at times used all of them.

2. Contractor profilographed entire warranty segment on the binder course on both lanes.

3. Contractor's awareness of the bid price pay for 5% over the plan quantity (this helped assure no major overruns).

The experience with the AC warranty projects has been positive. Under their own initiative, contractors use the best practice, methods and procedures.

District staff required on warranty projects is minimal. A delivery cost savings is usually experienced. It is, however, difficult to know where to draw the line in construction operations as to when our project management people should do something or do nothing because of the contractor's responsibility for five years. The districts have not had to use the conflict resolution procedure, or do bond work. However, the designated players that are knowledgeable about each individual contract will change in time. This might get very confusing and hard to track/administer as these projects get more prevalent.

WisDOT believes that when the contractor tries a new technology or method the warranty specification should require that the DOT be notified so that DOT can be kept informed. Warranties are a catalyst for implementing new technology. However, WisDOT hopes that warranty projects do not become a shortcut for implementing research projects. No formal work plan is required or provisions to evaluate these sections, as is typical for research projects. New ideas tie in nicely with an attitude of constant improvement; accordingly, WisDOT should be informed of innovative construction procedures so a

monitoring plan can be developed to evaluate if the procedure should become part of the standard contracts.

SUMMARY

Estimating. There is a general interest by the Department in improving the accuracy of our project cost estimates. Warranty projects represent one small aspect of this emphasis area but it is an area that should benefit from a commitment to increase awareness of designers to the cost impact of warranty special provisions. The Asphaltic Pavement Warranted item is most often the major difference between the bid price and the engineer's estimate. With more time and projects a large database of unit prices will be developed which will improve the designers accuracy in estimating. Also the associated risk of a project to the contractor needs to be evaluated in order to accurately estimate the cost of a warranty. In order to improve WisDOT's estimating ability and increase the knowledge base it is suggested that designers discuss proposed warranty projects with the contractors early in the design phase.

Unit price comparisons. Warranty projects cost less than standardly administered projects. Even when ignoring State construction delivery costs (which would add still more costs to the standard projects), the warranty projects averaged $24.34 per ton compared to $27.72 per ton for standard projects from 1995 to 1999. The higher cost of warranties in 2000 can be attributed to the inclusion of ancillary pavements to the specification.

Construction engineering costs. The indications are that the Department's project delivery costs are lower on warranted projects than standard asphaltic pavement projects.

Performance and Quality. Considering ride and all forms of distress, the warranty projects are performing better than typical pavements of equal age.

Thresholds. No threshold has been exceeded; thus, there has been no need for remedial work.

Innovation. The contractors have been innovative in quality control, paving, use of additives, etc. In addition, the warranty concept has proven to be an innovative means for contract administration.

Cost effectiveness. The performance and costs of warranty projects indicate that warranties are indeed a cost-effective option for a state highway agency.

RECOMMENDATIONS

1. An incentive provision could be made to reduce the warranty period or to pay the contractor for an exceptionally good performing pavement. Such a program would reward exceptional performance by giving the customers a superior pavement, and by creating an incentive for contractors to maximize performance. Maximizing performance would be based upon a pavement significantly exceeding typical performance. The warranty period would only be reduced once the exceptional performance is documented.

2. It is recommended that either the performance criteria be "tightened up" (adjusted to be more restrictive) for the same five year time period or the criteria remain the same but the warranty period increased. In either case, a warranted project would help assure a better quality, longer lasting pavement than could be obtained under a traditionally administered project.

3. The warranty concept must be factored earlier into the design process. WisDOT must foster the mindset that warranty work is an acceptable not experimental way of delivering a project.

4. Investigate the possibility of bidding all projects conventionally and with a warranty. WisDOT would award the bid based upon the conventional bid and then decide whether or not they wanted to buy the warranty.

5. A change in practice should be considered in which standard asphaltic pavement projects are identified as reasonable candidates for warranted projects. Candidate projects could be selected based on pre-established factors or combination of factors (for example, based on proximity, length, contractor, initial cost estimate, etc.).

6. Warranty projects can be fertile ground for innovation. However, WisDOT should be informed of such innovation so a monitoring plan can be developed. Accordingly, if a new product or test sections are built, the materials records, construction practices, etc. should be provided to the State. The mutual evaluation of the innovation may lead to implementation in other contracts.

7. Since WisDOT takes the risk of designing the pavement cross section and establishes the design concept (overlay, rehabilitation, reconstruction, etc.), any innovative change to the typical section (of the plan) must be approved by the WisDOT district office.

8. WisDOT should consider pursuing a full warranty implementation program (all projects being warranty candidates). For projects with "poor" subgrades, WisDOT should correct the problem and pave with a warranty.

APPENDICES

APPENDIX A - 2000 WARRANTY SPECIFICATION

APPENDIX B - PAVEMENT PERFORMANCE SUMMARY

APPENDIX C - 2000 SPECIFIC PROJECT PERFORMANCE

APPENDIX A
2000 WARRANTY SPECIFICATION

Mainline Asphaltic Pavement, Warranted, Item 90370
Ancillary Asphaltic Pavement, Warranted, Item 90371

A. Description.

A.1. General. This work consists of the construction and warranty of asphaltic pavement conforming to the lines and grades shown on the plans as directed by the engineer. The contractor will establish the job mix formula, select all materials, and be responsible for the pavement performance and warranty work on the finished pavement for five years following completion of the asphaltic pavement. The provisions of the warranty work apply to all asphaltic mixtures placed under the warranted asphaltic pavement bid items. Sections 401 through 414 of the Standard Specifications are deleted for the warranted asphaltic pavement bid items.

A.2. Mainline Asphaltic Pavement, Warranted. This item consists of all asphaltic pavement placed on both the mainline traveled way and its adjacent mainline shoulders.

A.3. Ancillary Asphaltic Pavement, Warranted. This item consists of all asphaltic pavement, placed on side roads, private and public entrances, ramps, tapers, turn lanes, the new pavement placed within 50 feet (15m) of a bridge deck, and other locations not described as Mainline Asphaltic Pavement, Warranted.

B. Warranty. The necessary warranty bond for the asphaltic pavement items will be in effect for the entire five year warranty period beginning when the warranted pavement is completed and open to public traffic. The bonding company must have an A.M. Best rating of "A-" or better and the contractor will provide proof of a five year bond commitment before execution of the contract.

The warranty bond will be $_____ for the warranted asphaltic pavement. The bond will insure the proper and prompt completion of required warranty work following completion of the pavement, including payments for all labor, equipment, and materials used according to this specification.

For the first year of the warranty bond, the contractor shall provided documentation that the contract bond, which remains in effect for one year beyond the completion of the project, will also include warranty work, as described in Section G. For the remaining four year warranty period, the contractor shall provide documentation that the warranty bond will be provided in one of the following manners:

1. A single term four year warranty bond.
2. A two-year renewable, non-cumulative warranty bond for two consecutive terms.

If the warranted pavement is placed by a subcontractor rather than the contractor, the subcontractor performing the warranted work may provide the warranty bond for the remaining four year warranty period. If a subcontractor does provide the bond, it shall be a dual obligee bond, naming the contractor and the Wisconsin Department of Transportation as obligees. The subcontractor warranty bond will be one of the following:

1. A single term four year warranty bond.
2. A two-year renewable, non-cumulative warranty bond for two consecutive terms.

Failure of the contractor, sub-contractor or its surety to issue or renew the warranty bond will be considered a default and will result in forfeiture of 20% of the face amount of the bond to the Department.

All warranty work will be as prescribed in Section G. At the end of the warranty period, the contractor will be relieved of the responsibility to perform further warranty work, provided all previous

warranty work has been completed.

C. Quality Control and Documentation. Prior to construction, the contractor will provide the engineer with a Quality Control Plan. The Quality Control Plan shall outline the contractor's material and construction control processes. At a minimum the plan shall include each of the following:

1. A list of the quality control tests that will be used to control the material and construction quality.
2. The quality control sampling, testing and documentation frequencies.
3. The asphaltic pavement job mix formulas (JMF) planned for the project, and the method used to develop the JMF.
4. A list of project materials.
5. The names of the two Conflict Resolution Team members that will represent the contractor, and a proposed third party member.

The engineer will provide the contractor the two names of the Conflict Resolution Team members that will represent the Department, and a response to the third party member proposed by the contractor, within ten days after receiving the Quality Control Plan. If the engineer disagrees with the third party member proposed by the contractor, the engineer will provide an alternate proposal and initiate discussion with the contractor to determine a mutually agreed upon member.

At the completion of the project, the contractor shall provide documentation of the project to the engineer. This documentation shall consist of all quality control test results performed to control materials and construction; and any changes made to typical widths and depths of subgrade, subbase, base, and surface.

D. Conflict Resolution Team. The Conflict Resolution Team will have the final authority to make decisions if a conflict occurs. The team will resolve disputes by a majority vote. The team will consist of two contractor representatives, two Department (District & Central Office) representatives, and a third party mutually agreed upon by both the Department and the contractor. The cost of the third party will be equally shared between the Department and the contractor. The team members will be identified in writing prior to the start of paving. The team will receive the Department Pavement Surface Distress Survey Training, when it is determined necessary to make a distress survey of the pavement to resolve a dispute.

E. Pavement Distress Surveys, Evaluations, and Contractor Monitoring.

E.1. Pavement Distress Surveys. The Department's Bureau of Highway Construction will conduct a pavement distress survey of the warranted mainline asphaltic pavement during the first year following construction. For the remaining years of the warranty period, the Bureau will conduct distress surveys of the mainline pavement according to the normal surveying cycle of the Bureau, between April 15 and May 15; or if requested by the contractor or district. The Bureau's surveying cycle is dependent on the location of the highway and the highway classification. The Department's Pavement Surface Distress Survey Manual will be used to determine and measure the different types of distress.

The pavement distress surveys will be conducted by dividing the highway system into nominal one-mile sections. Two one-tenth mile segments in each mile will be evaluated for pavement distress. One of the segments evaluated will be between 0.3 and 0.4 miles from the start of the section. The second one-tenth mile segment will be selected randomly by the Department. If areas other than the surveyed segments are suspected of meeting or exceeding a threshold level, the Department will divide the entire mainline project pavement into 0.1 mile segments and conduct a distress survey in any, or all, segment(s). The distress survey results will be made available to the district, central office, contractor, and FHWA within 14 days after completion of the survey. Pavement distress threshold criterion are listed in Section F.

If any of the threshold level criterion are met and the contractor agrees to the validity of the pavement distress survey results, the contractor will remedy the distress. Remedial work shall be determined according to Section G. If any of the threshold level criterion are met and the contractor does not agree to the validity

of the pavement distress survey results, written notification of the dispute will be made to the engineer by June 15. The Conflict Resolution Team will resolve the dispute.

E.2. Ancillary Pavement Evaluation, Fifth Year. In the fifth year of the warranty period, and in the interim years if requested by the contractor or district, a department and a contractor representative will, together, review and evaluate the project's Ancillary Asphaltic Pavement, Warranted. The pavement will be evaluated for performance in regards to its intended purpose.

If both the department representative and the contractor representative agree on the pavement's performance and necessary remedial work, the contractor will remedy the distress. If the two evaluators are not in agreement on the need for or type of remedial work, the Conflict Resolution Team will resolve the dispute. If any of the conditions described in the footnotes of the table in Section F are met, the contractor will be relieved of performing the remedial action for the described pavement distress.

E.3. Contractor Monitoring. During the warranty period, the contractor may monitor the pavement using nondestructive procedures. Coring, milling or other destructive procedures may not be performed by the contractor, without approval of the engineer.

F. Table of Distress Types, Threshold Levels, and Remedial Action. The Department will include each of the distress types listed below in the mainline pavement survey. The table lists the remedial action required for each distress type when the corresponding threshold level criterion is met.

DISTRESS TYPE	THRESHOLD LEVELS	REMEDIAL ACTION
Alligator Cracking**	≥1% of the area in a segment.	Remove and replace distressed layer(s). The removal area shall be equal to 150% of the distressed surface to a depth not to exceed the warranted pavement.
Block Cracking	≥1% of the area in a segment.	Remove and replace distressed layer(s). The removal area shall be equal to 110% of the distressed surface to a depth not to exceed the warranted pavement.
Edge Raveling	≥10% of the segment length.	Remove and replace distressed layer(s). The removal area shall be equal to 110% of the distressed surface to a depth not to exceed the warranted pavement.
Flushing	≥20% of the segment length.	Remove and replace distressed surface mixture full depth.
Longitudinal Cracking (shoulder line cracking is excluded from the segment measurements).	>1000 linear feet for cracks which average greater than 1/2 inch in width	Rout and seal all cracks with rubber crack filling material, or agreed upon equal.
	>1000 linear feet with 25% of the linear feet having band cracking or dislodgement.	If over 1000 feet, remove pavement and replace for the affected depth. If less than or equal to 1000 feet, place a patch 2 feet in width and 2 feet longer than the crack length, for the affected depth or agreed upon equal.
Longitudinal Distortion	≥1% of the segment length.	Remove and replace distressed layer(s). The removal area shall be equal to 110% of the distressed surface to a depth not to exceed the warranted pavement.

Rutting *	≥0.25 inches in depth, <0.5 inches in depth.	Remove ruts by milling surface with fine-tooth mill, overlaying, or micro surfacing.
	≥0.5 inches in depth.	Remove and replace surface layer.
Surface Raveling	≥Slight (for segregation, a slight rating is three or more segregated areas per segment. A segregated area is 30 square feet or more in size).	Apply a chip seal coat or partial depth repair.
Transverse Cracking***	When the warranted asphaltic pavement is constructed over a granular base course material, >25 cracks per segment which have a average open width greater than 1/2 inch.	Rout and seal all cracks with a rubberized crack filler, or approved equal.
	When the warranted asphaltic pavement is constructed over concrete pavement, >50 cracks per segment which have an average open width greater than 1/2 inch.	Rout and seal all cracks with a rubberized crack filler, or approved equal.
	>25 cracks per segment with 25% of the linear feet of cracking having band cracking or dislodgement.	Remove and replace distressed layer(s) to a depth not to exceed the warranted pavement.
Transverse Distortion	≥1% of the segment length.	Remove and replace distressed layer(s). The removal area shall be equal to 110% of the distressed surface to a depth not to exceed the warranted pavement.
Patching **, ***	≥150 linear feet of patching per segment (excluding longitudinal cracking remedial action).	Remove and replace the surface layer or place a minimum 1-1/4" overlay.
Potholes, slippage areas and other disintegrated areas.	Any presence of this type of distress.	Remove and replace the distressed area(s). The removal area will be equal to 150% of the distressed area to a depth not to exceed the warranted pavement.

* Rutting depth and length will be initially identified using standard WisDOT procedures. If rutting depth meets the threshold criterion, the final rut depth and length will be established by a method mutually agreed upon by the contractor and the Department.

The rutting threshold level is waived when the accumulated ESAL's are 50% or more above the projected fifth year accumulated ESAL's. The contractor will only be responsible for mixture and placement problems.

** When the warranted asphaltic pavement is constructed over a granular base course material, the

contractor will be relieved of the responsibility for remedial action for Alligator Cracking if the area in question is of proper thickness (not thinner than 0.5 inches from plan thickness) and the average recovered penetration of the surface course asphalt cement is above 30 and one (or more) of the following are true:

1. the base is plan thickness minus 2.0 inches or thinner, or
2. the subgrade density is less than 90% of optimum, or
3. the actual accumulated ESAL's are 50% or more above the projected fifth year accumulated ESAL's.

*** When the warranted asphaltic pavement is constructed over concrete pavement, the contractor will be relieved of the responsibility for remedial action for Transverse Cracking and Patching of the pavement if the area in question is of proper thickness (not thinner than plan thickness minus 0.5 inches) and the concrete pavement below the warranted pavement has experienced a blow up, joint disintegration, or similar failure.

G. Warranty Work. The contractor shall perform Warranty Work, during the five year warranty period, at no additional cost to the Department. Warranty work consists of remedial work, elective/preventive maintenance, and the required fourth year crack routing and sealing. The contractor shall maintain insurance, for performing warranty work, as specified in Section 107.26 of the Standard Specifications throughout the five year warranty period.

During warranty work operations, traffic control will be as specified in Section 643 of the Standard Specifications and all will conform to Part 6 of the Wisconsin Manual on Uniform Traffic Control Devices. The contractor will document all warranty work performed and annually provide this information to the Pavement Performance Section of the Department's Bureau of Highway Construction.

If warranty work necessitates a corrective action to the pavement markings, adjacent lane(s), or shoulders, that additional corrective action will be the responsibility of the contractor.

The contractor will not be held responsible for distresses which are caused by factors beyond the control of the contractor. Emergency repairs of these distresses will be the responsibility of the Department.

G.1. Remedial Work. Remedial work will be based on the results of the mainline pavement distress surveys or the ancillary pavement evaluation. Remedial work shall be performed in the same calendar year that the pavement distresses were recorded. Remedial work to be performed and materials to be used will be the joint decision of the contractor and the engineer. The contractor will not be responsible for damages that result from coring, milling or other destructive procedures conducted by the Department.

For mainline asphaltic pavement segments that meet the distress threshold level criterion of the table in Section F, the contractor shall perform the remedial work prescribed in the remedial action column of the table. The remedial work shall be performed in all segments of the project where a threshold level is met. The remedial work shall be applied to the entire segment(s) and the adjacent lanes and asphaltic shoulders.

For distressed ancillary asphaltic pavement and distressed mainline shoulders not adjacent to distressed mainline pavement the contractor shall perform remedial work as mutually determined by the contractor and the engineer.

If, at anytime during the warranty period, 30 percent or more of the project segments require or have received remedial action, then the entire project will receive remedial action as mutually determined by the contractor and the engineer.

The contractor will have the first option to perform the remedial work. If, in the opinion of the engineer, the problem requires immediate attention for the safety of the traveling public, and the contractor cannot perform the remedial work within eight hours, the engineer may have the remedial work done by other forces and at the contractor's expense. Remedial work performed by other forces will not alter the

requirements, responsibilities, or obligations of the warranty.

G.2. Elective/Preventive Maintenance. Elective/preventive maintenance will be a contractor option. Elective/preventive maintenance to be performed and materials to be used will be coordinated jointly by the contractor and the engineer.

G.3. Required Fourth Year Crack Routing and Sealing. During the fourth year of pavement service, the contractor shall route and seal the cracks of the mainline and ancillary pavement which extend through the full depth of the surface course with a rubberized crack filler or approved equal material.

H. Method of Measurement. The warranted asphaltic pavement bid items will be measured by the ton, based on the quantity of mixture placed, completed, and accepted. The contractor will present certified records of shipment for the quantities placed under this special provision.

The Department will measure Mainline Asphaltic Pavement, Warranted, as specified above up to a maximum of 105% of the plan quantity.

The Department will measure Ancillary Asphaltic Pavement, Warranted, as specified above up to a maximum of 105% of the plan quantity, or the quantity mutually agreed to by the contractor and engineer.

I. Basis of Payment. Mainline Asphaltic Pavement, Warranted; and Ancillary Mainline Asphaltic Pavement, Warranted, as measured above, will be paid for at the contract unit price, that price will be full compensation for furnishing, preparing, hauling, mixing and placing all materials, including asphaltic materials; for compacting mixtures; for preparation of foundation, unless otherwise provided; for the warranty bond(s), and warranty work; for the Quality Control Plan, and required documentation; for traffic control; and for all labor, tools, equipment and incidentals necessary to complete the work.

APPENDIX B
PAVEMENT PERFORMANCE SUMMARY

WARRANTY PROJECTS

PAVEMENT PERFORMANCE SUMMARY OF ALL PROJECTS

							PROJECT PERFORMANCE									
							1996		1997		1998		1999		2000	
DIST	HWY	FROM RP	PLUS DIST	TO RP	PLUS DIST	PROJECT LENGTH	AVG IRI	AVG PDI	AVG IRI	AVG PDI	AVG IRI	AVG PDI	AVG IRI	AVG PDI	AVG IRI	AVG PDI
		1995 CONSTRUCTION														
1	11E	111		116	0.54	4.87	0.85	1	0.81	3	0.83	2	0.77	3	0.88	4
6	85E	23		27T		4.05	0.83	8	0.93	10	0.91	15	1.12	16	1.19	16
7	45N	261		270		8.12	1.20	6	0.66	5	0.81	7	0.88	12	0.86	9
		1996 CONSTRUCTION														
6	35N	197		204		6.70			0.79	0	0.91	0	0.81	9	0.90	3
7	70E	180	0.16	191		7.4			0.77	0	0.84	0	0.79	10	0.71	7
2	23E	198		208A		7.97			1.02	2	1.22	3	1.36	14	1.16	27
		1997 CONSTRUCTION														
5	21E	4		15		14.63					0.78	0	0.77	2	0.78	1
3	54E	259G	0.51	264	0.64	4.18					0.93	1	0.93	11	0.86	4
6	63N	21A		31		10.20					0.90	0	0.90	0	0.90	2
		1998 CONSTRUCTION														
6	35N	275		282	0.50	5.59							1.09	0	0.97	1
4	54E	122		124		1.11							0.86	7	0.81	7
5	60E	33		38		4.26							0.94	0	0.96	0
5	95E	48		60		8.90							0.91	2	0.82	0
		1999 CONSTRUCTION														
6	27N	230		240		8.99									0.83	4
5	35N	159		178		15.53									0.70	1
4	I39N	347		357		10.47									0.84	0
4	I39S	357		347		10.49									0.88	0
5	80N	94K		101		3.66									0.93	0

APPENDIX C
2000 SPECIFIC PROJECT PERFORMANCE

WARRANTY PROJECT SUMMARY

STH 11 E
ROCK CO.
ORFORDVILLE - FOOTVILLE
PROJECT ID : 1701-05-72
Contractor: Rock Road

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1995 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							10% of segment area		10% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 sq ft	any		
1996																							
3-21-96	STH 213	PLYMOUTH TN LN	Control	.3	0.84	111		112								0.12						0.85	0
			Random	.5										<500'				1					7
	PLYMOUTH TN LN	WELSH RD	Control	.3	1.70	112		114								0.12						0.83	0
			Random	1.0																			9
	WELSH RD	S. FOOTVILLE RD	Control	.3	0.99	114		116								0.12						0.84	0
			Random	.4																			0
	S. FOOTVILLE RD	SECTION LINE	Control	.3	1.34	115		116	0.64							0.13						0.89	0
			Random	.6																			0
	AVERAGE															0.12						0.85	1
1997																							
5-13-97	STH 213	PLYMOUTH TN LN	Control	.3	0.84	111		112								0.11		2				0.90	0
			Random	.5										<100'				4					7
	PLYMOUTH TN LN	WELSH RD	Control	.3	1.70	112		114								0.10						0.77	0
			Random	1.0																			0
	WELSH RD	S. FOOTVILLE RD	Control	.3	0.99	114		115						<500'		0.11		3				0.82	13
			Random	.4										<500'									7
	S. FOOTVILLE RD	SECTION LINE	Control	.3	1.34	115		116	0.64							0.10		1				0.82	0
			Random	.6																			0
	AVERAGE															0.10						0.81	3
1998																							
3/25/1998	STH 213	PLYMOUTH TN LN	Control	.3	0.84	111		112						59'		0.18						0.82	0
			Random	.5										57'				3					7
	PLYMOUTH TN LN	WELSH RD	Control	.3	1.70	112		114								0.20						0.79	0
			Random	1.0																			0
	WELSH RD	S. FOOTVILLE RD	Control	.3	0.99	114		115						528'		0.18		2				0.86	7
			Random	.4										100'				2					0
	S. FOOTVILLE RD	SECTION LINE	Control	.3	1.34	115		116	0.64							0.20		1				0.88	0
			Random	.6																			0
	AVERAGE															0.19						0.83	2
1999																							
4/29/1999	STH 213	PLYMOUTH TN LN	Control	.3	0.84	111		112						68		0.05		1				0.76	0
			Random	.5										50				4					7
	PLYMOUTH TN LN	WELSH RD	Control	.3	1.70	112		114						63		0.08						0.74	0
			Random	1.0																			0
	WELSH RD	S. FOOTVILLE RD	Control	.3	0.99	114		115						495		0.06		3				0.78	15
			Random	.4										105									0
	S. FOOTVILLE RD	SECTION LINE	Control	.3	1.34	115		116	0.64							0.07		1				0.80	0
			Random	.6																			0
	AVERAGE															0.06						0.77	3
2000																							
	STH 213	PLYMOUTH TN LN	Control	.3	0.84	111		112						74		0.04		2				0.97	0
			Random	.5										14				4					7
	PLYMOUTH TN LN	WELSH RD	Control	.3	1.70	112		114						63		0.02						0.79	0
			Random	1.0																			0
	WELSH RD	S. FOOTVILLE RD	Control	.3	0.99	114		115						600		0.03		3				0.85	14
			Random	.4										226									7
	S. FOOTVILLE RD	SECTION LINE	Control	.3	1.34	115		116	0.64					5		0.08		1				0.98	0
			Random	.6																			0
	AVERAGE															0.04						0.88	4

* Cracks average 1/2-inch or less in width. Minimum threshold is 1000 lineal feet per segment.

*** Minimum threshold is 25 cracks per segment.

WARRANTY PROJECT SUMMARY

STH 85 E
EAU CLAIRE CO.
DURAND - EAU CLAIRE ROAD
PROJECT ID : 7120-01-71
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1995 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANSDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS: 10% of segment area		10% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1995																							
3-20-96	DUNN/EAU CLAIRE	SECTION LINE	Control	.3	0.96	23		23	0.96							0.08		8				0.81	7
			Random	.4														10					7
	SECTION LINE	MAPLE DR RD	Control	.4	1.00	23	0.96	25								0.09		4				0.89	7
			Random	.5														5					7
	MAPLE DR RD	CEMETERY RD	Control	.3	1.02	25		26M						<500		0.09		6				0.83	14
			Random	.7														5					7
	CEMETERY RD	STH 37	Control	.3	1.07	26M		27T								0.07		6				0.82	7
			Random	.1														6					7
	AVERAGE															**0.08**						**0.83**	**8**
1997																							
4/24/1997	DUNN/EAU CLAIRE	SECTION LINE	Control	.3	0.96	23		23	0.96							0.08		8				0.76	7
			Random	.4														14					7
	SECTION LINE	MAPLE DR RD	Control	.4	1.00	23	0.96	25								0.10		7				0.89	7
			Random	.5														7					7
	MAPLE DR RD	CEMETERY RD	Control	.3	1.02	25		26M						<500		0.10		6				0.70	14
			Random	.7														5					27
	CEMETERY RD	STH 37	Control	.3	1.07	26M		27T								0.08		7				1.36	7
			Random	.1														7					7
	AVERAGE															**0.09**						**0.93**	**10**
1998																							
3/12/1998	DUNN/EAU CLAIRE	SECTION LINE	Control	.3	0.96	23		23	0.96							0.06		8				0.88	7
			Random	.4														12				-	7
	SECTION LINE	MAPLE DR RD	Control	.4	1.00	23	0.96	25								0.07		7				1.00	7
			Random	.5														8					7
	MAPLE DR RD	CEMETERY RD	Control	.3	1.02	25		26M						<500		0.07		7				0.83	14
			Random	.7														5					27
	CEMETERY RD	STH 37	Control	.3	1.07	26M		27T								0.06		7				0.94	27
			Random	.1														7					27
	AVERAGE															**0.06**						**0.91**	**15**
1999																							
5/26/1999	DUNN/EAU CLAIRE	SECTION LINE	Control	.3	0.96	23		23	0.96					385		0.04		8				0.98	14
			Random	.4										55				12					7
	SECTION LINE	MAPLE DR RD	Control	.4	1.00	23	0.96	25						15		0.04		7				1.07	7
			Random	.5										0				4					7
	MAPLE DR RD	CEMETERY RD	Control	.3	1.02	25		26M						430		0.05		7				0.89	14
			Random	.7										0				6					27
	CEMETERY RD	STH 37	Control	.3	1.07	26M		27T						0		0.07		7				1.52	27
			Random	.1										0				7					27
	AVERAGE															**0.05**						**1.12**	**16**
2000																							
	DUNN/EAU CLAIRE	SECTION LINE	Control	.3	0.96	23		23	0.96					394		0.06		8				1.06	14
			Random	4														11					7
	SECTION LINE	MAPLE DR RD	Control	.4	1.00	23	0.96	25								0.05		8				1.20	7
			Random	.5										53				6					7
	MAPLE DR RD	CEMETERY RD	Control	.3	1.02	25		26M						416		0.04		6				1.05	14
			Random	.7														7					27
	CEMETERY RD	STH 37	Control	.3	1.07	26M		27T								0.09		7				1.43	27
			Random	.1														7					27
	AVERAGE															**0.06**						**1.19**	**16**

* Cracks average 1/2-inch or less in width. Minimum threshold is 1000 lineal feet per segment.

*** Minimum threshold is 25 cracks per segment.

WARRANTY PROJECT SUMMARY

USH 45 N
LANGLADE CO.
CTH B - CTH J
PROJECT ID : 1602-04-71
Contractor: Northeast Asphalt

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1995 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG lnl	PDI
			THRESHOLD LEVELS							10% of segment area		10% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	100 lin ft	any		
1996																							
3-24-96	CTH B	CTH C	Control	.3	1.02	261		262								0.09		2				1.34	0
			Random	.2														4					7
	CTH C	BRANCH RD	Control	.3	1.48	262		264								0.09		4				1.56	7
			Random	1.0										<500				2					7
	BRANCH RD	CTH V	Control	.3	0.97	264		265								0.08		1				1.17	0
			Random	.6																			0
	CTH V	CTH J	Control	.3	0.94	265		266								0.09						0.99	0
			Random	.8														3					7
	CTH J	SECTION LINE	Control	.3	1.57	266		268								0.09		3				1.12	7
			Random	1.4										<500				1					7
	SECTION LINE	SECTION LINE	Control	.3	1.07	268	1.57	269	2.64					<500		0.08		1				1.07	7
			Random	.5										<500				2					7
	SECTION LINE	CTH J	Control	.3	1.07	269	2.64	270						<500		0.07		3				1.05	14
			Random	.6										<500				4					14
	AVERAGE															**0.08**						**1.20**	**6**
1997																							
4-23-97	CTH B	CTH C	Control	.3	1.02	261		262								0.09		2				0.69	0
			Random	.2														3					7
	CTH C	BRANCH RD	Control	.3	1.48	262		264								0.08		5				0.64	7
			Random	1.0										<500				2					0
	BRANCH RD	CTH V	Control	.3	0.97	264		265								0.07		1				0.71	0
			Random	.6																			0
	CTH V	CTH J	Control	.3	0.94	265		266								0.09		2				0.60	0
			Random	.8														3					7
	CTH J	SECTION LINE	Control	.3	1.57	266		268								0.08		4				0.62	7
			Random	1.4										<500				1					0
	SECTION LINE	SECTION LINE	Control	.3	1.07	268	1.57	269	2.64					<500		0.08		1				0.67	0
			Random	.5										<500				2					7
	SECTION LINE	CTH J	Control	.3	1.07	269	2.64	270						<500		0.06		3				0.75	22
			Random	.6										<500				4					14
	AVERAGE															**0.08**						**0.66**	**5**
1998																							
3/17/1998	CTH B	CTH C	Control	.3	1.02	261		262								0.10		3				0.77	7
			Random	.2														2					0
	CTH C	BRANCH RD	Control	.3	1.48	262		264								0.10		5				0.80	7
			Random	1.0										85'				2					0
	BRANCH RD	CTH V	Control	.3	0.97	264		265						60'		0.12		1				0.88	0
			Random	.6										475'									7
	CTH V	CTH J	Control	.3	0.94	265		266								0.09		2				0.74	0
			Random	.8										125'				3					14
	CTH J	SECTION LINE	Control	.3	1.57	266		268								0.11		4				0.74	7
			Random	1.4										315'				1					7
	SECTION LINE	SECTION LINE	Control	.3	1.07	268	1.57	269	2.64					270'		0.10						0.82	7
			Random	.5										380'				3					14
	SECTION LINE	CTH J	Control	.3	1.07	269	2.64	270						500'		0.11		4				0.96	14
			Random	.6										500'				5					14
	AVERAGE															**0.10**						**0.81**	**7**
1999																							
5/25/1999	CTH B	CTH C	Control	.3	1.02	261		262						85		0.09		3				0.88	27
			Random	.2										0				2					0
	CTH C	BRANCH RD	Control	.3	1.48	262		264						100		0.08		5				0.86	7
			Random	1.0										205				3					32
	BRANCH RD	CTH V	Control	.3	0.97	264		265						55		0.11		1				0.99	0
			Random	.6										520				0					7
	CTH V	CTH J	Control	.3	0.94	265		266						0		0.07		2				0.79	0
			Random	.8										110				3					7
	CTH J	SECTION LINE	Control	.3	1.57	266		268						125 **		0.08		5				0.79	33
			Random	1.4										670 **				2					15
	SECTION LINE	SECTION LINE	Control	.3	1.07	268	1.57	269	2.64					75		0.07		2				0.88	0
			Random	.5										475				3					32
	SECTION LINE	CTH J	Control	.3	1.07	269	2.64	270						528		0.08		4				1.05	14
			Random	.6										528				5					14
	AVERAGE															**0.08**						**0.88**	**13**
2000																							
	CTH B	CTH C	Control	.3	1.02	261		262						210		0.13		2				0.84	14
			Random	.2										56				3					0
	CTH C	BRANCH RD	Control	.3	1.48	262		264						195		0.11		5				0.85	14
			Random	1.0										260				3					14
	BRANCH RD	CTH V	Control	.3	0.97	264		265						123		0.14		1				0.90	0
			Random	.6										173									7
	CTH V	CTH J	Control	.3	0.94	265		266						5		0.13		4				0.77	7
			Random	.8										144				3					14
	CTH J	SECTION LINE	Control	.3	1.57	266		268						16		0.11		5		****		0.82	7
			Random	1.4										168				1					7
	SECTION LINE	SECTION LINE	Control	.3	1.07	268	1.57	269	2.64					237		0.12		2				0.85	7
			Random	.5										310				3					14
	SECTION LINE	CTH J	Control	.3	1.07	269	2.64	270						519		0.15		4				0.99	14
			Random	.6										528				5					14
	AVERAGE															**0.12**						**0.86**	**8.5**

* Cracks average 1/2-inch or less in width. Minimum threshold is 1000 lineal feet per segment.

** Minimum threshold is 25 cracks per segment.

**** Culvert Patch 1.19 mi into section

MOST RECENT SURVEY RESULTS

STH 35N
PEPIN CO.
STOCKHOLM - PEPIN ROAD
PROJECT ID : 7180-09-75
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1996 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS:							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1997																							
4-24-97	CTH N	CTH CC	Control	.3	0.92	197		198								0.00		1				0.67	0
			Random	.5																			0
	CTH CC	LAKEPORT RD	Control	.3	1.01	198		199								0.10						0.68	0
			Random	.9																			0
	LAKEPORT RD	LOST CREEK STR	Control	.3	1.35	199		200								0.11						0.79	0
			Random	.4														1					0
	LOST CREEK STR	SECTION LINE	Control	.3	1.32	200		200	1.32							0.12						0.87	0
			Random	.6														1					0
	SECTION LINE	CTH JJ	Control	.3	1.04	200	1.32	203								0.11						0.93	0
			Random	.7																			0
	CTH JJ	CTH J	Control	.3	1.06	203		204								0.11						0.78	0
			Random	.1																			0
	AVERAGE															0.10						0.79	0
1998																							
3/12/1998	CTH N	CTH CC	Control	.3	0.92	197		198								0.06		1				0.85	0
			Random	.5														2					0
	CTH CC	LAKEPORT RD	Control	.3	1.01	198		199								0.04						0.79	0
			Random	.9																			0
	LAKEPORT RD	LOST CREEK STR	Control	.3	1.35	199		200								0.05						0.93	0
			Random	.4														2					0
	LOST CREEK STR	SECTION LINE	Control	.3	1.32	200		200	1.32							0.04						1.00	0
			Random	.6														1					0
	SECTION LINE	CTH JJ	Control	.3	1.04	200	1.32	203								0.05						0.99	0
			Random	.7																			0
	CTH JJ	CTH J	Control	.3	1.06	203		204								0.04						0.91	0
			Random	.1																			0
	AVERAGE															0.04						0.91	0
1999																							
5/26/1999	CTH N	CTH CC	Control	.3	0.92	197		198								0.04		2				0.76	0
			Random	.5														4					27
	CTH CC	LAKEPORT RD	Control	.3	1.01	198		199								0.02		3				0.71	27
			Random	.9														4					27
	LAKEPORT RD	LOST CREEK STR	Control	.3	1.35	199		200								0.03		2				0.80	0
			Random	.4														2					0
	LOST CREEK STR	SECTION LINE	Control	.3	1.32	200		200	1.32							0.03		0				0.90	0
			Random	.6														6					27
	SECTION LINE	CTH JJ	Control	.3	1.04	200	1.32	203								0.03		0				0.89	0
			Random	.7														0					0
	CTH JJ	CTH J	Control	.3	1.06	203		204								0.03		0				0.80	0
			Random	.1														0					0
	AVERAGE															0.03						0.81	9
2000																							
	CTH N	CTH CC	Control	.3	0.92	197		198						0		0.11		3				0.76	7
			Random	.5										0				3					7
	CTH CC	LAKEPORT RD	Control	.3	1.01	198		199						0		0.07		4				0.68	7
			Random	.9										0				5					7
	LAKEPORT RD	LOST CREEK STR	Control	.3	1.35	199		200						0		0.05		2				0.81	0
			Random	.4										0				4					7
	LOST CREEK STR	SECTION LINE	Control	.3	1.32	200		200	1.32					0		0.03		0				1.37	0
			Random	.6										0				0					0
	SECTION LINE	CTH JJ	Control	.3	1.04	200	1.32	203						0		0.05		0				0.86	0
			Random	.7										0				0					0
	CTH JJ	CTH J	Control	.3	1.06	203		204						0		0.05		0				0.82	0
			Random	.1										0				0					0
	AVERAGE															0.05						0.90	3
2001																							
	CTH N	CTH CC	Control	.3	0.92	197		198						0		0.10		5				0.79	27
			Random	.5										0				6					27
	CTH CC	LAKEPORT RD	Control	.3	1.01	198		199						0		0.05		4				0.62	7
			Random	.9										5				3					27
	LAKEPORT RD	LOST CREEK STR	Control	.3	1.35	199		200						0		0.04		3				0.91	27
			Random	.4										41				6					27
	LOST CREEK STR	SECTION LINE	Control	.3	1.32	200		200	1.32					0		0.04		2				0.89	0
			Random	.6										6				4					7
	SECTION LINE	CTH JJ	Control	.3	1.04	200	1.32	203						0		0.06		1				1.00	0
			Random	.7										0				1					0
	CTH JJ	CTH J	Control	.3	1.06	203		204						26		0.05		4				0.84	14
			Random	.1										0				3					27
	AVERAGE															0.05						0.85	16

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS.

STH 70E
ONEIDA CO.
NORTH COUNTY LINE - USH 51
PROJECT ID : 9570-03-70
Contractor: Northeast Asphalt

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1996 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEQ	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
									THRESHOLD LEVELS	1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1997																							
4-23-97	VILA / ONEI CO. LN.	SQUIRREL LAKE RD	Control	.3	1.29	180	0.15	183								0.09						0.75	0
			Random	.6																			0
	SQUIRREL LAKE RD	BELLWOOD DR	Control	.3	1.72	183		185								0.10		1				0.72	0
			Random	.8														1					0
	BELLWOOD DR	CHIMPMUNK DR	Control	.3	1.80	185		187								0.09						0.88	0
			Random	.4																			0
	CHIMPMUNK DR	HOWER RD	Control	.3	1.29	187		189								0.10						0.74	0
			Random	.7																			0
	HOWER RD	BLUMSTEIN RD	Control	.3	1.27	189		191								0.10						0.78	0
			Random	.2																			0
	AVERAGE															0.10						0.77	0
1998																							
3/24/1998	VILA / ONEI CO. LN.	SQUIRREL LAKE RD	Control	.3	1.29	180	0.15	183								0.06						0.87	0
			Random	.6																			0
	SQUIRREL LAKE RD	BELLWOOD DR	Control	.3	1.72	183		185								0.07						0.75	0
			Random	.8														1					0
	BELLWOOD DR	CHIMPMUNK DR	Control	.3	1.80	185		187								0.06						0.99	0
			Random	.4																			0
	CHIMPMUNK DR	HOWER RD	Control	.3	1.29	187		189								0.06		1				0.78	0
			Random	.7																			0
	HOWER RD	BLUMSTEIN RD	Control	.3	1.27	189		191								0.07						0.82	0
			Random	.2																			0
	AVERAGE															0.06						0.84	0
1999																							
5/25/1999	VILAS / ONEIDA CO. LN.	SQUIRREL LAKE RD	Control	.3	1.29	180	0.16	183								0.04		3				0.78	7
			Random	.6														3					7
	SQUIRREL LAKE RD	BELLWOOD DR	Control	.3	1.72	183		185								0.03		2				0.70	0
			Random	.8														4					27
	BELLWOOD DR	CHIMPMUNK DR	Control	.3	1.80	185		187								0.04		4			15	0.90	10
			Random	.4														4					7
	CHIMPMUNK DR	HOWER RD	Control	.3	1.29	187		189								0.03		3				0.72	7
			Random	.7														3					7
	HOWER RD	BLUMSTEIN RD	Control	.3	1.27	189		191								0.03		0				0.85	0
			Random	.2														3					27
	AVERAGE															0.03						0.79	10
2000																							
10/10/2000	VILAS / ONEIDA CO. LN.	SQUIRREL LAKE RD	Control	.3	1.29	180	0.16	183						0		0.06		3				0.71	7
			Random	.6										49				5					7
	SQUIRREL LAKE RD	BELLWOOD DR	Control	.3	1.72	183		185						0		0.06		6				0.69	7
			Random	.8										0				5					7
	BELLWOOD DR	CHIMPMUNK DR	Control	.3	1.80	185		187						0		0.08		6				0.79	7
			Random	.4										56				5					7
	CHIMPMUNK DR	HOWER RD	Control	.3	1.29	187		189						0		0.03		7				0.65	7
			Random	.7										0				4					7
	HOWER RD (Under Construction)	BLUMSTEIN RD	Control	.3	1.27	189		191															
			Random	.2																			
	AVERAGE															0.06						0.71	7
2001																							
	VILAS / ONEIDA CO. LN.	SQUIRREL LAKE RD	Control	.3	1.29	180	0.16	183						13		0.09		4				0.74	27
			Random	.6										5				5					7
	SQUIRREL LAKE RD	BELLWOOD DR	Control	.3	1.72	183		185						23		0.09		4				0.68	27
			Random	.8										20				5					7
	BELLWOOD DR	CHIMPMUNK DR	Control	.3	1.80	185		187						397		0.11		7				0.81	14
			Random	.4										210				5					14
	CHIMPMUNK DR	HOWER RD	Control	.3	1.29	187		189						25		0.08		9				0.60	7
			Random	.7										0				5					27
	HOWER RD (Reconstructed in 2000)	BLUMSTEIN RD	Control	.3	1.27	189		191															
			Random	.2																			
	AVERAGE															0.09						0.71	16

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 23E
FOND DU LAC CO.
RIPON - ROSENDALE ROAD
PROJECT ID : 1430-00-71
Contractor: Northwest Asphalt

ASPHALTIC CONCRETE PAVEMENT
OVER RIGID BASE

1996 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
THRESHOLD LEVELS										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in	slight	50/seg ***	1% seg lgt	150 lin ft	any		
1997																							
4-22-97	DOUGLAS RD	BRANDON RD	Control	.3	0.80	198		199								0.08						1.07	0
			Random	.4																			0
	BRANDON RD	SILVER CREEK RD	Control	.3	0.74	199		200A								0.09						0.88	0
			Random	.2																			0
	SILVER CREEK RD	WILLOW RD	Control	.3	1.04	200A		201C								0.08						0.85	0
			Random	.7														5					7
	WILLOW RD	CTH KK	Control	.3	1.75	201C		203F								0.08						0.93	0
			Random	.9														4					7
	CTH KK	CTH M	Control	.3	1.13	203F		205								0.09		5				1.05	7
			Random	.5														4					7
	CTH M	SECTION LINE	Control	.3	1.01	205		205	1.01							0.09		1				1.08	0
			Random	.2																			0
	SECTION LINE	STH 26	Control	.3	1.50	205	1.01	206A								0.09						1.24	0
			Random	.1																			0
	AVERAGE															0.08						1.02	2
1998																							
3/17/1998	DOUGLAS RD	BRANDON RD	Control	.3	0.80	198		199								0.06						1.21	0
			Random	.4																			0
	BRANDON RD	SILVER CREEK RD	Control	.3	0.74	199		200A								0.06						1.03	0
			Random	.2																			0
	SILVER CREEK RD	WILLOW RD	Control	.3	1.04	200A		201C						425'		0.05						1.03	7
			Random	.7														10					7
	WILLOW RD	CTH KK	Control	.3	1.75	201C		203F								0.05		1				1.07	0
			Random	.9														4					7
	CTH KK	CTH M	Control	.3	1.13	203F		205								0.06		4				1.22	7
			Random	.5														5					7
	CTH M	SECTION LINE	Control	.3	1.01	205		205	1.01							0.05		1				1.32	0
			Random	.2																			0
	SECTION LINE	STH 26	Control	.3	1.50	205	1.01	206A								0.05		1				1.55	0
			Random	.1																			0
	AVERAGE															0.05						1.22	3
1999																							
4/29/1999	DOUGLAS RD	BRANDON RD	Control	.3	0.80	198		199						295		0.03		2				1.43	7
			Random	.4										560									7
	BRANDON RD	SILVER CREEK RD	Control	.3	0.74	199		200A						500		0.03						1.08	7
			Random	.2										225				2					7
	SILVER CREEK RD	WILLOW RD	Control	.3	1.04	200A		201C						500		0.03		14				1.06	32
			Random	.7														15					27
	WILLOW RD	CTH KK	Control	.3	1.75	201C		203F						425		0.04		10				1.14	14
			Random	.9										25				10					7
	CTH KK	CTH M	Control	.3	1.13	203F		205								0.05		12				1.29	7
			Random	.5														12					27
	CTH M	SECTION LINE	Control	.3	1.01	205		205	1.01					80		0.04		12				1.50	27
			Random	.2														8					7
	SECTION LINE	STH 26	Control	.3	1.50	205	1.01	206A						25		0.04		10				1.89	7
			Random	.1														5					7
	AVERAGE															0.04						1.36	14
2000																							
	DOUGLAS RD	BRANDON RD	Control	.3	0.80	198		199						863		0.12		3				1.33	22
			Random	.4										664									15
	BRANDON RD	SILVER CREEK RD	Control	.3	0.74	199		200A						796		0.11						0.92	15
			Random	.2										432				1					7
	SILVER CREEK RD	WILLOW RD	Control	.3	1.04	200A		201C						771		0.09		14				0.92	34
			Random	.7										763				14					22
	WILLOW RD	CTH KK	Control	.3	1.75	201C		203F						569		0.08		17				0.96	34
			Random	.9										436				14					34
	CTH KK	CTH M	Control	.3	1.13	203F		205						14		0.07		15				1.16	27
			Random	.5										19				17					27
	CTH M	SECTION LINE	Control	.3	1.01	205		205	1.01					279		0.07		14				1.32	34
			Random	.2										290				18					34
	SECTION LINE	STH 26	Control	.3	1.50	205	1.01	206A						538		0.07		18				1.47	34
			Random	.1										574				14					34
	AVERAGE															0.08						1.16	27
2001																							
	DOUGLAS RD	BRANDON RD	Control	.3	0.80	198		199						1105		0.07	Yes	10				1.37	69
			Random	.4										1559				1					70
	BRANDON RD	SILVER CREEK RD	Control	.3	0.74	199		200A						1279		0.08		3				0.89	40
			Random	.2										1279				0					13
	SILVER CREEK RD	WILLOW RD	Control	.3	1.04	200A		201C						1183		0.04		20				0.98	40
			Random	.7								Yes		1537				19					84
	WILLOW RD	CTH KK	Control	.3	1.75	201C		203F				Yes		1135		0.06		27				0.90	52
			Random	.9										1674				18					60
	CTH KK	CTH M	Control	.3	1.13	203F		205				Yes		1046		0.05		18				1.28	44
			Random	.5								Yes		1159				17					44
	CTH M	SECTION LINE	Control	.3	1.01	205		205	1.01					1103		0.06		25				1.33	36
			Random	.2										1609				21					56
	SECTION LINE	STH 26	Control	.3	1.50	205	1.01	206A						1637		0.07		19				1.50	56
			Random	.1										1359				29					57
	AVERAGE															0.06						1.18	50

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 50 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 21E
MONROE CO.
SPARTA - TOMAH
PROJECT ID : 7605-06-71
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1997 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGOR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG (R)	PDI
									THRESHOLD LEVELS	1% of segment area		1% sag lgt	20% sag lgt	1000 lin ft *	1% sag lgt	.25 in	slight	25/seg **	1% sag lgt	150 lin ft	any		
1996																							
9/11/1996	CTH A	SECTION LINE	Control	.3	1.11	4		5								0.09						1.14	0
			Random	.6																			0
	SECTION LINE	TN OF LAFAYETTE	Control	.3	1.22	5		6								0.08						0.70	0
			Random	.4																			0
	TN OF LAFAYETTE	CTH BB	Control	.3	1.22	6		7								0.08						0.68	0
			Random	.4																			0
	CTH BB	SECTION LINE	Control	.3	1.56	7		8								0.09	1					0.66	0
			Random	.7																			0
	SECTION LINE	TN GREENFIELD	Control	.5	0.97	8		9								0.08						0.65	0
			Random	.6																			0
	TN GREENFIELD	X RD	Control	.3	0.98	9		10								0.05						0.70	0
			Random	.4																			0
	X RD	BUCKLEY AVE	Control	.3	1.59	10		11								0.05						0.69	0
			Random	.9																			0
	BUCKLEY AVE	CTH E	Control	.3	1.35	11		12								0.04						0.69	0
			Random	.5																			0
	CTH E	CTH M	Control	.3	1.78	12		13								0.06						0.80	0
			Random	.7																			0
	CTH M	BUCKLEY CT	Control	.3	1.16	13		14								0.06						0.76	0
			Random	.4																			0
	FLINT AVE	USH 12	Control	.3	1.78	14		15								0.07						0.74	0
			Random	.9																			0
	AVERAGE															0.07						0.78	0
1998																							
5/29/1998	CTH A	SECTION LINE	Control	.3	1.11	4		5								0.05						1.18	0
			Random	.6																			0
	SECTION LINE	TN OF LAFAYETTE	Control	.3	1.22	5		6								0.04						0.69	0
			Random	.4																			0
	TN OF LAFAYETTE	CTH BB	Control	.3	1.22	6		7								0.05	1 **					0.68	4
			Random	.4													1 **						4
	CTH BB	SECTION LINE	Control	.3	1.56	7		8								0.05	1 **					0.88	4
			Random	.7													1 **						4
	SECTION LINE	TN OF GREENFIELD	Control	.5	0.97	8		9								0.05	1 **					0.91	4
			Random	.6													1 **						4
	TN OF GREENFIELD	X RD	Control	.3	0.98	9		10								0.03	1 **					0.64	4
			Random	.4													1 **						4
	X RD	FIREWORKS RD	Control	.3	1.50	10		11								0.02	1 **					0.66	4
			Random	.9													1 **						4
	FIREWORKS RD	CTH E	Control	.3	1.35	11		12								0.02						0.66	0
			Random	.5																			0
	CTH E	CTH M	Control	.3	1.78	12		13								0.03						0.76	0
			Random	.7																			0
	CTH M	FLINT AVE	Control	.3	1.16	13		14								0.03						0.75	0
			Random	.4																			0
	FLINT AVE	USH 12	Control	.3	1.78	14		15								0.03						0.74	0
			Random	.9																			0
	AVERAGE															0.03						0.77	2
2000																							
	CTH A	SECTION LINE	Control	.3	1.11	4		5							0	0.10		0				1.04	0
			Random	.6											0			1					0
	SECTION LINE	TN OF LAFAYETTE	Control	.3	1.22	5		6							0	0.10		0				0.74	0
			Random	.4											0			0					0
	TN OF LAFAYETTE	CTH BB	Control	.3	1.22	6		7							0	0.10		0				0.73	0
			Random	.4											0			0					0
	CTH BB	SECTION LINE	Control	.3	1.56	7		8							0	0.10		1				0.61	0
			Random	.7											0			0					0
	SECTION LINE	TN OF GREENFIELD	Control	.5	0.97	8		9							0	0.08		0				1.01	0
			Random	.6											0			0					0
	TN OF GREENFIELD	X RD	Control	.3	0.99	9		10							0	0.09		0				0.68	0
			Random	.4											0			0					0
	X RD	FIREWORKS RD	Control	.3	1.50	10		11							0	0.09		0				0.72	0
			Random	.9											0			0					0
	FIREWORKS RD	CTH E	Control	.3	1.35	11		12							0	0.10		0				0.70	0
			Random	.5											0			0					0
	CTH E	CTH M	Control	.3	1.78	12		13							0	0.10		1				0.77	0
			Random	.7											184			5					7
	CTH M	FLINT AVE	Control	.3	1.16	13		14							0	0.06		0				0.73	0
			Random	.4											0			0					0
	FLINT AVE	USH 12	Control	.3	1.78	14		15							244	0.08		0				0.75	7
			Random	.9											199			0					7
	AVERAGE															0.06						0.75	1
2001																							
	CTH A	SECTION LINE	Control	.3	1.11	4		5							0	0.06		1				1.06	0
			Random	.6											0			2					0
	SECTION LINE	TN OF LAFAYETTE	Control	.3	1.22	5		6							0	0.07		0				0.75	0
			Random	.4											24.9			0					0
	TN OF LAFAYETTE	CTH BB	Control	.3	1.22	6		7							0	0.05		0				0.73	0
			Random	.4											0			0					0
	CTH BB	SECTION LINE	Control	.3	1.56	7		8							18.9	0.06		0				0.95	0
			Random	.7											355			1					7
	SECTION LINE	TN OF GREENFIELD	Control	.5	0.97	8		9							0	0.05		0				1.03	0
			Random	.6											9.9			0					0
	TN OF GREENFIELD	X RD	Control	.3	0.98	9		10							25.9	0.08		1				0.77	0
			Random	.4											12.3			1					0
	X RD	FIREWORKS RD	Control	.3	1.50	10		11							0	0.08		0				0.84	0
			Random	.9											0			0					0
	FIREWORKS RD	CTH E	Control	.3	1.35	11		12							0	0.07		0				0.79	0
			Random	.5											59.6			0					5
	CTH E	CTH M	Control	.3	1.78	12		13							21.9	0.08		2				1.00	0
			Random	.7											61.6			0					0
	CTH M	FLINT AVE	Control	.3	1.16	13		14							0	0.07		0				0.89	0
			Random	.4											0			1					0
	FLINT AVE	USH 12	Control	.3	1.78	14		15							63.6	0.09		0				0.96	0
			Random	.9											374			1					7
	AVERAGE															0.06						0.89	1

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 54E
BROWN & KEWAUNEE COUNTIES
NEW FRANKEN - LUXEMBURG
PROJECT ID : 4130-04-72
Contractor: Northeast Asphalt

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1997 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEC	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	FOTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	160 lin ft	any		
1998																							
3/17/1998	STUMP RD	BROW/KEWA CO LN	Control	.3	0.50	295G	0.51	260								0.07						0.98	0
			Random	.4														5					7
	BROW/KEWA CO LN	CTH H	Control	.3	1.02	260		262								0.08						0.89	0
			Random	.7																			0
	CTH H	RENDEZVOUS RD	Control	.3	1.01	262		263								0.07						0.98	0
			Random	.9																			0
	RENDEZVOUS RD	STH 163	Random	.2	1.01	263		264								0.07						0.96	0
			Control	.3																			0
	STH 163	END WARRANTY	Control	.4	0.64	264		264	0.64							0.07						0.89	0
			Random	.5																			0
	AVERAGE															**0.07**						**0.93**	**1**
1999																							
	STUMP RD	BROW/KEWA CO LN	Control	.3	0.50	259G	0.51	260						60		0.05		15				0.89	27
			Random	.4										35				27 **					27
	BROW/KEWA CO LN	CTH H	Control	.3	1.02	260		262						0		0.05		2				0.91	0
			Random	.7										0				4					27
	CTH H	RENDEZVOUS RD	Control	.3	1.01	262		263						0		0.05		0				0.98	0
			Random	.9										0				1					0
	RENDEZVOUS RD	STH 163	Random	.2	1.01	263		264						0		0.05		1				0.90	0
			Control	.3										0				0					0
	STH 163	END WARRANTY	Control	.4	0.64	264		264	0.64					0		0.04		2				0.95	0
			Random	.5										70				7					27
	AVERAGE															**0.05**						**0.93**	**11**
2000																							
	STUMP RD	BROW/KEWA CO LN	Control	.3	0.50	295G	0.51	260						248		0.10		9				0.86	14
			Random	.4										477				17					14
	BROW/KEWA CO LN	CTH H	Control	.3	1.02	260		262						25		0.09		1				0.85	0
			Random	.7										33				4					0
	CTH H	RENDEZVOUS RD	Control	.3	1.01	262		263						61		0.09		0				0.92	0
			Random	.9										0				1					0
	RENDEZVOUS RD	STH 163	Random	.2	1.01	263		264						0		0.08		1				0.85	0
			Control	.3										0				0					0
	STH 163	END WARRANTY	Control	.4	0.64	264		264	0.64					94		0.08		2				0.79	0
			Random	.5										36				9					7
	AVERAGE															**0.08**						**0.86**	**4**
2001																							
	STUMP RD	BROW/KEWA CO LN	Control	.3	0.50	295G	0.51	260						566		0.08		13				1.05	34
			Random	.4										545				22					14
	BROW/KEWA CO LN	CTH H	Control	.3	1.02	260		262						159		0.11		2				0.97	27
			Random	.7										92				5					7
	CTH H	RENDEZVOUS RD	Control	.3	1.01	262		263						183		0.07		0				0.92	27
			Random	.9										147				2					27
	RENDEZVOUS RD	STH 163	Random	.2	1.01	263		264						263		0.10		1				0.90	27
			Control	.3										84				0					0
	STH 163	END WARRANTY	Control	.4	0.64	264		264	0.64			0.14		222		0.07		8				0.78	42
			Random	.5										399				12					14
	AVERAGE															**0.09**						**0.92**	**22**

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are sealed.

MOST RECENT SURVEY RESULTS

USH 63 N
PIERCE CO.
ELLSWORTH - BALDWIN
PROJECT ID : 7210-07-71
Contractor: Monarch Paving

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1997 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SUBFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1998																							
3/12/1998	USH 10E	STH 72E	Control	.3	1.50	21A		23								0.07						0.86	0
			Random	.4																			0
	STH 72E	570TH AVE	Control	.3	1.12	23		24								0.07						0.95	0
			Random	.2																			0
	570TH AVE	CTH G	Control	.3	1.01	24		25								0.06						0.86	0
			Random	.7																			0
	CTH G	CTH N	Control	.3	0.97	25		26								0.06						0.97	0
			Random	.5																			0
	CTH N	690TH ST	Control	.3	1.03	26		27								0.08						0.85	0
			Random	.9																			0
	690TH ST	730TH AVE	Control	.3	1.00	27		28								0.06						0.79	0
			Random	.6																			0
	730TH AVE	CTH Y	Control	.3	1.60	28		30M								0.06						0.87	0
			Random	1.2																			0
	CTH Y	STH 29E	Control	.3	1.97	30M		31								0.08						1.00	0
			Random	1.1																			0
	AVERAGE															**0.07**						**0.90**	**0**
1999																							
5/26/1999	USH 10E	STH 72E	Control	.3	1.50	21A		23								0.04		0				0.91	0
			Random															2					0
	STH 72E	570TH AVE	Control	.3	1.12	23		24								0.04		2				0.95	0
			Random															3					7
	570TH AVE	CTH G	Control	.3	1.01	24		25								0.04		0				0.85	0
			Random															2					0
	CTH G	CTH N	Control	.3	0.97	25		26								0.03		0				0.95	0
			Random															0					0
	CTH N	690TH ST	Control	.3	1.03	26		27								0.05		1				0.82	0
			Random															1					0
	690TH ST	730TH AVE	Control	.3	1.00	27		28								0.04		2				0.76	0
			Random															0					0
	730TH AVE	CTH Y	Control	.3	1.60	28		30M								0.04		2				0.88	0
			Random															2					0
	CTH Y	STH 29E	Control	.3	1.97	30M		31								0.06		0				0.99	0
			Random															0					0
	AVERAGE															**0.04**						**0.90**	**0**
2000																							
	USH 10E	STH 72E	Control	.3	1.50	21A		23						0		0.04		2				0.93	0
			Random	.4										0				1					0
	STH 72E	570TH AVE	Control	.3	1.12	23		24						14		0.05		2				0.95	0
			Random	.2										0				4					7
	570TH AVE	CTH G	Control	.3	1.01	24		25						0		0.03		0				0.90	0
			Random	.7										0				2					0
	CTH G	CTH N	Control	.3	0.97	25		26						0		0.03		1				0.95	0
			Random	.5										0				1					0
	CTH N	690TH ST	Control	.3	1.03	26		27						0		0.03		1				0.88	0
			Random	.9										0				2					0
	690TH ST	730TH AVE	Control	.3	1.00	27		28						0		0.03		4				0.79	7
			Random	.6										0				0					0
	730TH AVE	CTH Y	Control	.3	1.60	28		30M						0		0.03		3				0.86	7
			Random	1.2										0				3					7
	CTH Y	STH 29E	Control	.3	1.97	30M		31						0		0.05		0				0.91	0
			Random	1.1										0				2					0
	AVERAGE															**0.03**						**0.90**	**2**
2001																							
	USH 10E	STH 72E	Control	.3	1.50	21A		23						17		0.04		2				0.95	0
			Random	.4										12				5					7
	STH 72E	570TH AVE	Control	.3	1.12	23		24						0		0.04		5				1.00	7
			Random	.2										209				2					7
	570TH AVE	CTH G	Control	.3	1.01	24		25						0		0.03		1				0.98	0
			Random	.7										16				5					7
	CTH G	CTH N	Control	.3	0.97	25		26						21		0.04		3				0.96	7
			Random	.5										0				1					0
	CTH N	690TH ST	Control	.3	1.03	26		27						15		0.04		3				0.96	7
			Random	.9										0				7					7
	690TH ST	730TH AVE	Control	.3	1.00	27		28						6		0.04		3				0.85	7
			Random	.6										0				1					0
	730TH AVE	CTH Y	Control	.3	1.60	28		30M						0		0.04		5				0.93	7
			Random	1.2										14				4					7
	CTH Y	STH 29E	Control	.3	1.97	30M		31						0		0.05		0				0.99	0
			Random	1.1										0				0					0
	AVERAGE															**0.04**						**0.95**	**4**

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 35N
ST CROIX CO.
SOMERSET - NORTH CO LINE
PROJECT ID : 8081-01-72
Contractor: Monarch Paving

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1998 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1999																							
5/26/1999	CTH I (SPRING ST)	190TH AVE	Control	.3	0.99	275		198								0.05						2.16	0
			Random	.5																			0
	190TH AVE	200TH AVE	Control	.3	1.00	277		199								0.02						0.82	0
			Random	.8																			0
	200TH AVE	210TH AVE	Control	.3	1.00	278		200								0.02						0.81	0
			Random	.7																			0
	210TH AVE	220TH AVE	Control	.3	1.01	280		200								0.02						0.82	0
			Random	.4																			0
	220TH AVE	CTH H	Control	.3	1.09	282		203								0.03						0.86	0
			Random	.6																			0
	AVERAGE															**0.03**						**1.09**	**0**
2000																							
	CTH I (SPRING ST)	190TH AVE	Control	.3	0.99	275		277						0		0.09		0				1.76	0
			Random	.5										0				1					0
	190TH AVE	200TH AVE	Control	.3	1.00	277		278						0		0.08		0				0.77	0
			Random	.8										0				3					7
	200TH AVE	210TH AVE	Control	.3	1.00	278		280						0		0.06		0				0.80	0
			Random	.7										0				1					0
	210TH AVE	220TH AVE	Control	.3	1.01	280		281						0		0.06		2				0.80	0
			Random	.4										0				2					0
	220TH AVE	CTH H	Control	.3	1.09	281		282						0		0.08		0				0.81	0
			Random	.6										0				0					0
	CTH H	SAWED & SEALED	Random	.1	0.50	282		282	0.50					0		0.09		0				0.92	0
			Control	.3										0				0					0
	SAWED & SEALED	ST CROIX / POLK	Random	.6	0.50	282	0.50	283						0				17					7
			Random	.8										0				17					7
	AVERAGE															**0.07**						**0.97**	**1**
2001																							
	CTH I (SPRING ST)	190TH AVE	Control	.3	0.99	275		198						13		0.06		3				1.72	7
			Random	.5										0				3					7
	190TH AVE	200TH AVE	Control	.3	1.00	277		199						0		0.03		0				0.91	0
			Random	.8										0				6					7
	200TH AVE	210TH AVE	Control	.3	1.00	278		200						11		0.03		4				0.95	7
			Random	.7										20				3					7
	210TH AVE	220TH AVE	Control	.3	1.01	280		200						0		0.03		6				0.95	7
			Random	.4										0				5					7
	220TH AVE	CTH H	Control	.3	1.09	282		203						0		0.04		2				0.96	0
			Random	.6										0				2					0
	CTH H	ST CROIX / POLK	Random	.1	0.50	283		283	1.02					0		0.05		2				1.03	0
			Control	.3										0				0					0
	AVERAGE															**0.04**						**1.09**	**4**

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 54E
WOOD COUNTY
CTH G - STH 73
PROJECT ID : 6950-04-71
Contractor: American Asphalt

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1998 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1999																							
5/26/1999	CTH G	SWANSON RD	Control	.3	1.11	122		124								0.05		13 **				0.86	7
			Random	.8														13 **					7
	AVERAGE															0.05						0.86	7
2000																							
	CTH G	SWANSON RD	Control	.3	1.11	122		124						0		0.12		14				0.81	7
			Random	.8										0				14					7
	AVERAGE															0.12						0.81	7
2001																							
	CTH G	SWANSON RD	Control	.3	1.11	122		124						0		0.12		14				0.83	7
			Random	.8										0				14					7
	AVERAGE															0.12						0.83	7

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.
** All Type 1 cracks.
*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.
Note: This project is Sawed and Sealed. In WisDOT PDI system these joints are equivalent to sealed cracks.

MOST RECENT SURVEY RESULTS

STH 60E
CRAWFORD & RICHLAND COUNTIES
USH 61 - CTH W
PROJECT ID : 5190-04-71
Contractor: Iverson

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1998 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1999																							
5/27/1999	USH 61	GEORGETOWN RD	Control	.4	1.10	33		34								0.03						1.18	0
			Random	.6																			0
	GEORGETOWN RD	CRAW/RICH CO LN	Control	.3	1.43	34		35	0.44							0.02						0.86	0
			Random	.8																			0
	CRAW/RICH CO LN	CTH W	Control	.3	1.73	35	0.44	38								0.03	**					0.86	0
			Random	1.4																			0
	AVERAGE															0.02						0.94	0
2000																							
	USH 61	GEORGETOWN RD	Control	.4	1.10	33		34						16		0.06		0				1.12	0
			Random	.6										0				0					0
	GEORGETOWN RD	CRAW/RICH CO LN	Control	.3	1.43	34		35	0.44					0		0.06		0				0.79	0
			Random	.8										0				0					0
	CRAW/RICH CO LN	CTH W	Control	.3	1.73	35	0.44	38						0		0.05		0				1.01	0
			Random	1.4										0				0					0
	AVERAGE															0.05						0.98	0
2001																							
	USH 61	GEORGETOWN RD	Control	.4	1.10	33		34						17.9		0.06		0				1.23	0
			Random	.6										0				1					0
	GEORGETOWN RD	CRAW/RICH CO LN	Control	.3	1.43	34		35	0.44					6		0.09		3				0.60	7
			Random	.8										0				1					0
	CRAW/RICH CO LN	CTH W	Control	.3	1.73	35	0.44	38						9.7		0.08		0				1.01	0
			Random	1.4										0				0					0
	AVERAGE															0.08						0.93	1

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.
** Segregation exhibited, threshold not exceeded.
*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 95E
JACKSON COUNTY
TREMPELEAU/JACKSON CO LINE - HIXTON
PROJECT ID : 7560-06-71
Contractor: B.R. Arnon & Sons

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

1998 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
1999																							
5/27/1999	CTH W (TREM/JACK)	VOSSE COULEE RD	Control	.4	1.29	48		50								0.04						1.02	0
			Random	.9																			0
	VOSSE COULEE RD	TN OF SPRINGFIELD	Random	.1	1.87	50		52	0.65							0.03						0.95	0
			Control	.3																			0
	TN OF SPRINGFIELD	BERG RD	Control	.3	1.29	52	0.65	54								0.03						0.81	0
			Random	.6														7					7
	BERG RD	N LINCOLN RD	Control	.3	1.55	54		56								0.03		21 **				0.91	7
			Random	.4														20 **					7
	N LINCOLN RD	TN OF HIXTON	Control	.3	1.61	56		57	0.91							0.03						0.85	0
			Random	.5																			0
	TN OF HIXTON	SECHLERVILLE RD	Random	.2	0.81	57	0.91	59								0.03						0.81	0
			Control	.3																			0
	SECHLERVILLE RD	CTH FF	Random	.2	0.48	59		60								0.03						1.14	0
			Control	.3																			0
	AVERAGE															**0.03**						**0.91**	**2**
2000																							
	CTH W (TREM/JACK)	VOSSE COULEE RD	Control	.4	1.29	48		50						0		0.07		0				0.92	0
			Random	.9										0				0					0
	VOSSE COULEE RD	TN OF SPRINGFIELD	Random	.1	1.87	50		52	0.65					0		0.07		0				0.87	0
			Control	.3										0				0					0
	TN OF SPRINGFIELD	BERG RD	Control	.3	1.29	52	0.65	54						0		0.07		0				0.75	0
			Random	.6										0				0					0
	BERG RD	N. LINCOLN RD	Control	.3	1.55	54		56						0		0.06		0				0.79	0
			Random	.4										0				0					0
	N.LINCOLN RD	TN OF HIXTON	Control	.3	1.61	56		57	0.91					0		0.07		0				0.73	0
			Random	.5										0				0					0
	TN OF HIXTON	SECHLERVILLE RD	Random	.2	0.81	57	0.91	59						0		0.08		0				0.76	0
			Control	.3										0				0					0
	SECHLERVILLE RD	CTH FF	Random	.2	0.48	59		60						0		0.09		0				1.07	0
			Control	.3										0				0					0
	AVERAGE															**0.07**						**0.82**	**0**
2001																							
	CTH W (TREM/JACK)	BEGIN WARRANTY			0.20	48		48	0.20															
	BEGIN WARRANTY	VOSSE COULEE RD	Control	.2	1.29	48	0.20	50						0		0.08		0				0.89	0
			Random	.7										23				1					0
	VOSSE COULEE RD	TN OF SPRINGFIELD	Random	.1	1.87	50		52	0.65					0		0.09		0				0.67	0
			Control	.3										28				0					0
	TN OF SPRINGFIELD	BERG RD	Control	.3	1.29	52	0.65	54						0		0.07		3				0.66	7
			Random	.6										0				1					0
	BERG RD	N. LINCOLN RD	Control	.3	1.55	54		56						55		0.07		2				0.73	0
			Random	.4										42				2					0
	N.LINCOLN RD	TN OF HIXTON	Control	.3	1.61	56		57	0.91					27		0.08		1				0.60	0
			Random	.5										0				1					0
	TN OF HIXTON	SECHLERVILLE RD	Random	.2	0.81	57	0.91	59						0		0.09		0				0.70	0
			Control	.3										13				0					0
	SECHLERVILLE RD	END WARRANTY	Random	.2	0.48	59		59	0.48					0		0.08		0				1.11	0
			Control	.3										0				0					0
	END WARRANTY	CTH FF			0.45	59	0.487	60															
	AVERAGE															**0.08**						**0.72**	**1**

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

** Jointed asphalt treatement applied by contractor.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 27N
EAU CLAIRE COUNTY
BLACK BEAR TN RD - CTH X
PROJECT ID : 7070-08-70
Contractor: B.R. Amon & Sons

ASPHALTIC CONCRETE PAVEMENT
OVER PULVERIZED AC

1999 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS:													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg **	1% seg lgt	150 lin ft	any		
2000																							
	CTH GG	BEGIN WARRANTY	Lead In		0.86	230		230	0.86														
			Lead In																				
	BEGIN WARRANTY	TN LUDING/BR. CR.	Control	.1	0.26	230	0.86	230Q						0		0.19		0				1.55	0
	TN LUDING/BR. CR.	CTH N INT	Control	.3	0.98	230Q		233						0		0.05		0				0.71	0
			Random	.6										0				0					0
	CTH N INT	CTH NL INT	Control	.3	1.05	233		234						0		0.05		0				0.80	0
			Random	.5										14				0					1
	CTH NL INT	JIGLUM RD INT	Control	.3	1.12	234		235						0		0.05		108				0.83	28
			Random	.9										0				100					28
	JIGLUM RD INT	BERLIN RD INT	Control	.3	0.99	235		236						0		0.05		0				0.83	0
			Random	.4										0				0					0
	BERLIN RD INT	CTH D INT	Control	.3	1.06	236		237						0		0.05		0				0.85	0
			Random	.7										0				0					0
	CTH D INT	CTH X	Control	.3	1.75	237		239						0		0.05		0				0.83	0
			Random	.2										0				0					0
	CTH X	*EAUC/CHIP CO LN*	Control	.3	0.92	239		240						0		0.03		15				0.76	7
			Random	.5										0				0					0
	AVERAGE															**0.05**						**0.83**	**4**
2001																							
	CTH GG	BEGIN WARRANTY	Lead In		0.86	230		230	0.86														
***	BEGIN WARRANTY	CTH N INT	Control	.6	1.24	230Q		233						0		0.04		0				0.70	0
			Random	.9										0				0					0
	CTH N INT	*CTH NL INT*	Control	.3	1.05	233		234						0		0.04		0				0.86	0
			Random	.5										34				1					4
	CTH NL INT	JIGLUM RD INT	Control	.3	1.12	234		235						0		0.04		65				0.88	28
			Random	.9										0				50					16
	JIGLUM RD INT	BERLIN RD INT	Control	.3	0.99	235		236						0		0.05		0				0.86	0
			Random	.4										0				0					0
	BERLIN RD INT	CTH D INT	Control	.3	1.06	236		237						0		0.04		0				0.90	0
			Random	.7										0				0					0
	CTH D INT	CTH X	Control	.3	1.75	237		239						0		0.04		0				0.90	0
			Random	.2										0				0					0
	CTH X	EAUC/CHIP CO LN	Control	.3	0.92	239		240						0		0.03		0				0.80	0
			Random	.5										0				0					0
	AVERAGE															**0.04**						**0.84**	**3**

* *Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.*

** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

*** Combined .26 & .98 sections into one section

MOST RECENT SURVEY RESULTS

STH 35N
BUFFALO CO.
INDIAN CREEK RD STH 37N
PROJECT ID : 7161-08-71
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER RUBBLIZED PCC

1999 CONSTRUCTION

SURVEY YEAR	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2000																							
	INDIAN CREEK RD	BECHLY RD INT	Control	.3	0.56	159		160						0		0.05		0				0.63	0
			Random	.2										0				0					0
	BECHLY RD INT	STH 88N INT	Control	.3	1.13	160		161						287		0.05		0				0.70	7
			Random	.8										60				0					0
	STH 88N INT	PRAIRIE MOON RD	Control	.3	1.02	161		162						0		0.04		0				0.65	0
			Random	.4										0				0					0
	PRAIRIE MOON RD	TN OF BELVIDERE	Control	.3	0.64	162		162	0.64					0		0.03		0				0.59	0
			Random	.5										0				0					0
	TN OF BELVIDERE	SECTION LINE	Control	.3	0.79	162	0.64	162	1.43					0		0.05		0				0.62	0
			Random	.2										0				0					0
	SECTION LINE	CTH O (CTH OO)	Control	.3	1.28	162	1.43	165						0		0.05		0				0.71	0
			Random	1.1										146				0					7
	CTH O (CTH OO)	SECTION LINE			0.62	165		165	0.62														
	SECTION LINE	SIEFERT HILL RD	Control	.3	0.96	165	0.62	167						0		0.06		0				0.88	0
			Random	.7										17				0					0
	SIEFERT HILL RD	CTH N (FOEGEM RD)	Control	.3	1.05	167		168						31		0.05		0				0.62	0
			Random	.8										0				0					0
	CTH N (FOEGEM RD)	CTH OO INT	Control	.3	1.13	168		169						7		0.04		0				0.59	0
			Random	.6										0				0					0
	CTH OO INT	RIVER DR INT	Control	.3	0.85	169		171						356		0.05		0				0.63	7
			Random	.5										352				0					7
	RIVER DR INT	SECTION LINE	Control	.3	0.71	171		171	0.71					0		0.04		0				0.68	0
			Random	.4										0				0					0
	SECTION LINE	SECTION LINE	Control	.3	0.75	171	0.71	171	1.46					0		0.04		0				0.66	0
			Random	.6										0				0					0
	SECTION LINE	OLD STH 35 RD	Control	.3	0.58	171	1.46	173M						0		0.06		0				0.67	0
			Random	.4										0				0					0
	OLD STH 35 RD	LAUE ST INT	Control	.3	0.90	173M		174						0		0.04		0				0.82	0
			Random	.5										11				0					0
	LAUE ST INT	CTH E INT			0.58	174		175															
	CTH E INT	WALNUT ST INT	Control	.3	0.58	175		176						5		0.08		0				1.13	0
			Random	.2										0				0					0
	WALNUT ST INT	STH 37N INT	Control	.3	1.42	176		178						0		0.06		0				0.76	0
			Random	1.1										0				0					0
	AVERAGE															0.05						0.70	1
2001																							
	INDIAN CREEK RD	BECHLY RD INT	Control	.3	0.56	159		160						0		0.06		0				0.37	0
			Random	.2										0				0					0
	BECHLY RD INT	STH 88N INT	Control	.3	1.13	160		161						101		0.07		0				0.71	7
			Random	.8										0				0					0
	STH 88N INT	PRAIRIE MOON RD	Control	.3	1.02	161		162						0		0.05		0				0.65	0
			Random	.4										0				0					0
	PRAIRIE MOON RD	TN OF BELVIDERE	Control	.3	0.64	162		162	0.64					0		0.04		0				0.41	0
			Random	.5										0				0					0
	TN OF BELVIDERE	SECTION LINE	Control	.3	0.79	162	0.64	162	1.43					0		0.06		0				0.41	0
			Random	.2										0				0					0
	SECTION LINE	CTH O (CTH OO)	Control	.3	1.28	162	1.43	165						0		0.06		0				0.55	0
			Random	1.1										0				0					0
	CTH O (CTH OO)	SECTION LINE			0.62	165		165	0.62														
	SECTION LINE	SIEFERT HILL RD	Control	.3	0.96	165	0.62	167						0		0.08		0				0.82	0
			Random	.7										0				0					0
	SIEFERT HILL RD	CTH N (FOEGEM RD)	Control	.3	1.05	167		168						0		0.05		0				0.51	0
			Random	.8										0				0					0
	CTH N (FOEGEM RD)	CTH OO INT	Control	.3	1.13	168		169						0		0.05		0				0.48	0
			Random	.6										0				0					0
	CTH OO INT	RIVER DR INT	Control	.3	0.85	169		171						0		0.07		0				0.49	0
			Random	.5										0				0					0
	RIVER DR INT	SECTION LINE	Control	.3	0.71	171		171	0.71					0		0.05		0				0.78	0
			Random	.4										0				0					0
	SECTION LINE	SECTION LINE	Control	.3	0.75	171	0.71	171	1.46					0		0.05		0				0.56	0
			Random	.6										0				0					0
	SECTION LINE	OLD STH 35 RD	Control	.3	0.58	171	1.46	173M						0		0.06		0				0.59	0
			Random	.4										0				0					0
	OLD STH 35 RD	LAUE ST INT	Control	.3	0.90	173M		174						0		0.06		0				0.65	0
			Random	.5										0				0					0
	LAUE ST INT	CTH E INT			0.58	174		175															
	CTH E INT	WALNUT ST INT	Control	.3	0.58	175		176						0		0.09		0				1.14	0
			Random	.2										0				0					0
	WALNUT ST INT	STH 37N INT	Control	.3	1.42	176		178						0		0.08		0				0.85	0
			Random	1.1										0				0					0
	AVERAGE															0.06						0.64	0

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 35N
BUFFALO CO.
INDIAN CREEK RD STH 37N
PROJECT ID : 7161-08-71
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER RUBBLIZED PCC

1999 CONSTRUCTION

SURVEY YEAR	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2000																							
	INDIAN CREEK RD	BECHLY RD INT	Control	.3	0.56	159		160						0		0.05		0				0.63	0
			Random	.2										0				0					0
	BECHLY RD INT	STH 88N INT	Control	.3	1.13	160		161						287		0.05		0				0.70	7
			Random	.8										60				0					0
	STH 88N INT	PRAIRIE MOON RD	Control	.3	1.02	161		162						0		0.04		0				0.65	0
			Random	.4										0				0					0
	PRAIRIE MOON RD	TN OF BELVIDERE	Control	.3	0.64	162		162	0.64					0		0.03		0				0.59	0
			Random	.5										0				0					0
	TN OF BELVIDERE	SECTION LINE	Control	.3	0.79	162	0.64	162	1.43					0		0.05		0				0.62	0
			Random	.2										0				0					0
	SECTION LINE	CTH O (CTH OO)	Control	.3	1.28	162	1.43	165						0		0.05		0				0.71	0
			Random	1.1										146				0					7
	CTH O (CTH OO)	SECTION LINE			0.62	165		165	0.62														
	SECTION LINE	SIEFERT HILL RD	Control	.3	0.96	165	0.62	167						0		0.06		0				0.88	0
			Random	.7										17				0					0
	SIEFERT HILL RD	CTH N (FOEGEM RD)	Control	.3	1.05	167		168						31		0.05		0				0.62	0
			Random	.8										0				0					0
	CTH N (FOEGEM RD)	CTH OO INT	Control	.3	1.13	168		169						7		0.04		0				0.59	0
			Random	.6										0				0					0
	CTH OO INT	RIVER DR INT	Control	.3	0.85	169		171						356		0.05		0				0.63	7
			Random	.5										352				0					7
	RIVER DR INT	SECTION LINE	Control	.3	0.71	171		171	0.71					0		0.04		0				0.68	0
			Random	.4										0				0					0
	SECTION LINE	SECTION LINE	Control	.3	0.75	171	0.71	171	1.46					0		0.04		0				0.66	0
			Random	.6										0				0					0
	SECTION LINE	OLD STH 35 RD	Control	.3	0.58	171	1.46	173M						0		0.06		0				0.67	0
			Random	.4										0				0					0
	OLD STH 35 RD	LAUE ST INT	Control	.3	0.90	173M		174						0		0.04		0				0.82	0
			Random	.5										11				0					0
	LAUE ST INT	CTH E INT			0.58	174		175															
	CTH E INT	WALNUT ST INT	Control	.3	0.58	175		176						5		0.08		0				1.13	0
			Random	.2										0				0					0
	WALNUT ST INT	STH 37N INT	Control	.3	1.42	176		178						0		0.06		0				0.76	0
			Random	1.1										0				0					0
	AVERAGE															0.05						0.70	1
2001																							
	INDIAN CREEK RD	BECHLY RD INT	Control	.3	0.56	159		160						0		0.06		0				0.37	0
			Random	.2										0				0					0
	BECHLY RD INT	STH 88N INT	Control	.3	1.13	160		161						101		0.07		0				0.71	7
			Random	.8										0				0					0
	STH 88N INT	PRAIRIE MOON RD	Control	.3	1.02	161		162						0		0.05		0				0.65	0
			Random	.4										0				0					0
	PRAIRIE MOON RD	TN OF BELVIDERE	Control	.3	0.64	162		162	0.64					0		0.04		0				0.41	0
			Random	.5										0				0					0
	TN OF BELVIDERE	SECTION LINE	Control	.3	0.79	162	0.64	162	1.43					0		0.06		0				0.41	0
			Random	.2										0				0					0
	SECTION LINE	CTH O (CTH OO)	Control	.3	1.28	162	1.43	165						0		0.06		0				0.55	0
			Random	1.1										0				0					0
	CTH O (CTH OO)	SECTION LINE			0.62	165		165	0.62														
	SECTION LINE	SIEFERT HILL RD	Control	.3	0.96	165	0.62	167						0		0.08		0				0.82	0
			Random	.7										0				0					0
	SIEFERT HILL RD	CTH N (FOEGEM RD)	Control	.3	1.05	167		168						0		0.05		0				0.51	0
			Random	.8										0				0					0
	CTH N (FOEGEM RD)	CTH OO INT	Control	.3	1.13	168		169						0		0.05		0				0.48	0
			Random	.6										0				0					0
	CTH OO INT	RIVER DR INT	Control	.3	0.85	169		171						0		0.07		0				0.49	0
			Random	.5										0				0					0
	RIVER DR INT	SECTION LINE	Control	.3	0.71	171		171	0.71					0		0.05		0				0.78	0
			Random	.4										0				0					0
	SECTION LINE	SECTION LINE	Control	.3	0.75	171	0.71	171	1.46					0		0.05		0				0.56	0
			Random	.6										0				0					0
	SECTION LINE	OLD STH 35 RD	Control	.3	0.58	171	1.46	173M						0		0.06		0				0.59	0
			Random	.4										0				0					0
	OLD STH 35 RD	LAUE ST INT	Control	.3	0.90	173M		174						0		0.06		0				0.65	0
			Random	.5										0				0					0
	LAUE ST INT	CTH E INT			0.58	174		175															
	CTH E INT	WALNUT ST INT	Control	.3	0.58	175		176						0		0.09		0				1.14	0
			Random	.2										0				0					0
	WALNUT ST INT	STH 37N INT	Control	.3	1.42	176		178						0		0.08		0				0.85	0
			Random	1.1										0				0					0
	AVERAGE															0.06						0.64	0

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

I - 39S
PORTAGE CO.
BUS. 51 OFF RAMP - STH 54 OFF RAMP
PROJECT ID : 1160-01-75
Contractor: American Asphalt

ASPHALTIC CONCRETE PAVEMENT
OVER RUBBLIZED PCC

1999 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS:							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2000																							
	BUS. 51N ON RAMP	RESERVE ST STR	Control	.3	0.80	357		356						0		0.03		0				0.92	0
			Random	.4										0				0					0
	RESERVE ST STR	WILSHIRE BLVD OH	Control	.3	1.11	356		355						0		0.05		0				0.82	0
			Random	.9										0				0					0
	WILSHIRE BLVD OH	BARBRAS LN OH	Control	.3	1.19	355		354						0		0.03		0				0.91	0
			Random	1.0										0				0					0
	BARBRAS LN OH	SOO LINE RR STR	Control	.3	1.51	354		352						0		0.03		0				0.92	0
			Random	.6										0				0					0
	SOO LINE RR STR	CTH HH OH	Control	.3	1.03	352		351						0		0.04		0				0.89	0
			Random	.8										0				0					0
	CTH HH OH	PORTER DR OH	Control	.3	1.00	351		350						0		0.03		0				0.76	0
			Random	.7										0				0					0
	PORTER DR OH	LIT PLOVER RIVER	Control	.3	0.75	350		349	0.75					0		0.02		0				0.82	0
			Random	.5										0				0					0
	LIT PLOVER RVR STR	CTH B STR	Control	.3	1.27	349	0.75	348						0		0.05		0				0.96	0
			Random	.9										1				0					0
	CTH B STR	SECTION LINE	Control	0.4	0.99	348		348	0.99					0		0.05		0				0.96	0
			Random	.2										0				0					0
	SECTION LINE	STH 54 OFF RAMP	Control	.3	0.84	348	0.99	347						0		0.05		0				0.82	0
			Random	.6										0				0					0
	AVERAGE															0.04						0.88	0
2001																							
	BUS. 51N ON RAMP	RESERVE ST STR	Control	.3	0.80	357		356						0		0.03		0				0.99	0
			Random	.4										0				0					0
	RESERVE ST STR	WILSHIRE BLVD OH	Control	.3	1.11	356		355						0		0.03		0				0.93	0
			Random	.9										0				0					0
	WILSHIRE BLVD OH	BARBRAS LN OH	Control	.2	1.19	355		354						38		0.02		0				0.61	0
			Random	1.0										0				1					0
	BARBRAS LN OH	SOO LINE RR STR	Control	.4	0.77	354		352						0		0.03		0				0.59	0
			Random	.6										0				2					0
	SOO LINE RR STR	CTH HH OH	Control	.3	1.03	352		351						18		0.03		0				0.69	0
			Random	.8										0				0					0
	CTH HH OH	PORTER DR OH	Control	.3	1.00	351		350						41		0.02		0				0.43	0
			Random	.7										0				0					0
	PORTER DR OH	LIT PLOVER RIVER	Control	.3	0.75	350		349	0.75					0		0.03		0				0.41	0
			Random	.5										0				0					0
	LIT PLOVER RVR STR	CTH B STR	Control	.3	1.27	349	0.75	348						0		0.03		0				0.89	0
			Random	.9								33ft		36				2					8
	CTH B STR	SECTION LINE	Control	.3	0.99	348		348	0.99					0		0.03		0				0.85	0
			Random	.2										0				1					0
	SECTION LINE	STH 54 OFF RAMP	Control	.3	0.84	348	0.99	347						0		0.03		0				0.45	0
			Random	.7										0				0					0
	AVERAGE															0.03						0.69	0

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 80N
RICHLAND
CTH Y - PAULS HILL RD
PROJECT ID : 5552-01-71
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER RUBBLIZED PCC

1999 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2000																							
	CTH Y	WEGNAN RD	Control	.3	1.16	094K		094K	1.16					0		0.10		0				0.77	0
			Random	.6										0				0					0
	WEGNAN RD	INDIAN CREEK RD	Control	.3	1.46	094K	1.2	99						0		0.11		0				1.05	0
			Random	.8										0				0					0
	INDIAN CREEK RD	PAULS HILL RD	Control	.3	1.04	99		101						0		0.08		0				0.96	0
			Random	.5										0				0					0
	AVERAGE															0.10						0.93	0
2001																							
	CTH Y	WEGNAN RD	Control	.3	1.16	094K		094K	1.16					0		0.12		0				0.94	0
			Random	.6										0				0					0
	WEGNAN RD	INDIAN CREEK RD	Control	.3	1.46	094K	1.2	99						0		0.13		0				1.17	0
			Random	.8										0				0					0
	INDIAN CREEK RD	PAULS HILL RD	Control	.3	1.04	99		101						0		0.08		0				1.00	0
			Random	.5										0				0					0
	AVERAGE															0.11						1.05	0

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are banded.

MOST RECENT SURVEY RESULTS

STH 29E
PIERCE COUNTY
RIVER FALLS - SPRING VALLEY
PROJECT ID : 7640-07-70
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

2000 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
									THRESHOLD LEVELS	1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2001																							
	STH 35/65	900th St	Control	.4	1.10	15K		16D						0		0.03		0				1.45	0
			Random	.7										0				0					0
	900th St	850th St	Control	.3	1.18	16D		18						70		0.03		1				1.24	0
			Random	.8										207				0					7
	850th St	805th St	Control	.3	1.32	18		19						137		0.04		0				1.24	7
			Random	1.0										190				1					7
	805th St	770th St	Control	.3	0.97	19		21						0		0.03		2				1.40	0
			Random	.4										0				2					0
	770th St	TOWN OF MARTEL	Control	.3	1.07	21		22	0.26					0		0.03		0				1.60	0
			Random	.5										0				0					0
	TOWN OF MARTEL	690th St	Control	.3	1.05	22	0.26	25						52		0.04		1				1.52	0
			Random	.9										64				5					7
	690th St	650th St	Control	.3	0.99	25		26						0		0.04		3				1.25	7
			Random	.7										0				2					0
	650th St	590th St	Control	.3	1.50	26		28						0		0.05		5				1.30	7
			Random	.8										0				7					7
	590th St	RUSH RIVER STR	Control	.3	1.16	28		30						0		0.05		14				1.44	27
			Random	.6										0				13					27
	RUSH RIVER STR	USH 63	Control	.3	1.33	30		33						0		0.04		4				1.42	7
			Random	.9														8					7
	AVERAGE															0.04						1.38	6

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are anded.

MOST RECENT SURVEY RESULTS

STH 64E
CHIPPEWA COUNTY
BLOOMER - CORNELL
PROJECT ID : 8190-00-71
Contractor: Monarch

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

2000 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS	1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2001																							
	STH 124	190th AVE	Control	.3	1.21	80		82		0	0	0	0	0	0	0.03	0	0	0	0	0	0.78	0
			Random	.9						0	0	0	0	530	0		0	0	0	0	0		13
	190th AVE	191st AVE	Control	.3	1.47	82		82	1.47	0	0	0	0	749	0	0.03	0	0	0	0	0	0.71	13
			Random	.4						0	0	0	0	242	0		0	0	0	0	0		7
	191st AVE	CTH E	Random	.1	1.08	82	1.47	85		0	0	0	0	252	0	0.03	0	0	0	0	0	0.52	7
			Control	.3						0	0	0	0	598	0		0	0	0	0	0		13
	CTH E	END WARRANTY	Random	.1	0.35	85		85	0.35	0	0	0	0	169	0	0.14	0	0	0	0	0	1.24	7
			Control	.2						0	0	0	0	399	0		0	0	0	0	0		7
	AVERAGE															0.04						0.72	8

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

** Transverse cracking threshold is exceeded. Recorded type and number of transverse cracks: 1=14, 2=0, 3=13. This section is a 1-1/4" overlay on existing asphaltic concrete pavement. The remainder of the project is new asphaltic concrete over granular base.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are anded.

MOST RECENT SURVEY RESULTS

STH 64E / 73N
TAYLOR COUNTY
THORP - HANNIBAL
PROJECT ID : 8210-08-70
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

2000 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANSDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2001																							
	STH 73	POLLEY LA	Control	.3	1.50	121K		120								0.05						0.76	0
			Random	1.1																			0
	POLLEY LA	TRUCKER LA	Control	.3	1.01	120		119								0.04						0.66	0
			Random	.7																			0
	TRUCKER LA	STH 64	Control	.3	0.76	119		118D								0.04						0.75	0
			Random	.5																			0
	STH 64	BABIT AVE	Random	.2	0.77	283M		284								0.03						0.72	0
			Control	3																			0
	BABIT AVE	CTH G (MILLER AVE)	Control	3	1.01	284		285								0.04						0.67	0
			Random	.9																			0
	CTH G (MILLER AVE)	S. TOWN LINE RD	Control	.3	0.94	285		286								0.05						0.61	0
			Random	.4																			0
	S. TOWN LINE RD	MADISON AVE	Control	.3	1.01	286		287								0.05						0.79	0
			Random	.8																			0
	MADISON AVE	CTH M	Random	.3	1.50	287		22								0.05						0.62	0
			Control	1.0																			0
	CTH M	END WARRANTY	Control	.3	0.83	289		289	0.28							0.15						1.62	0
			Random	.6																			0
	AVERAGE															0.05						0.77	0

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are ended.

MOST RECENT SURVEY RESULTS

STH 73N
TAYLOR COUNTY
THORP - HANNIBAL
PROJECT ID : 8210-07-74
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

2000 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGERAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
			THRESHOLD LEVELS							1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2001																							
	COUNTY LINE RD	EAU CLAIRE RIVER STR	Control	.3	1.02	274		275								0.03						0.64	0
			Random	.7																			0
	EAU CLAIRE RIVER STR	SHINER DR	Random	.2	0.99	275		276								0.03						0.72	0
			Control	.3																			0
	SHINER DR	CTH F	Control	.3	1.00	276		277								0.04						0.88	0
			Random	.6																			0
	CTH F	ELM DR	Random	.3	1.00	277		278								0.05						0.73	0
			Control	.5																			0
	ELM DR	END WARRANTY (1)	Random	.1	1.12	278		278	1.12							0.04						0.66	0
			Control	.3																			0
	Warranty Exception				0.21				0.21														0
	BEGIN WARRANTY (2)	END WARRANTY 2	Control	.3	1.35	278	1.33	280	0.33							0.11						1.50	0
			Random	.9																			0
	AVERAGE															0.05						0.85	0

* Minimum threshold is 1000 lineal feet of cracks averaging greater than 1/2-inch in width.

*** Threshold is 25 cracks per segment that average greater than 1/2-inch, or 25 cracks per segment of which 25 percent are anded.

MOST RECENT SURVEY RESULTS

STH 131N
MONROE COUNTY
TOMAH - WILTON
PROJECT ID : 5130-08-71
Contractor: Mathy

ASPHALTIC CONCRETE PAVEMENT
OVER FLEXIBLE BASE

2000 CONSTRUCTION

SURVEY YEAR (Date)	FROM FEATURE	TO FEATURE	SECTION LOCATION: TEST SEGMENT	DIST TO SEG	SECTION LENGTH	FROM RP	PLUS DIST	TO RP	PLUS DIST	DISTRESS THRESHOLDS: ALLIGCR	BLOCKCR	EDGEAV	FLUSH	LONGCR	LONGDIS	RUT	SURFRAV	TRANSCR	TRANDIS	PATCH	POTHOLE	RIDE AVG IRI	PDI
										THRESHOLD LEVELS													
										1% of segment area		1% seg lgt	20% seg lgt	1000 lin ft *	1% seg lgt	.25 in.	slight	25/seg ***	1% seg lgt	150 lin ft	any		
2001																							
	KILN AVE + 264'	KICKAPOO SPRINGS RD	Control	.3	1.32	115	0.05	117								0.05						0.64	0
			Random	1.1																			0
	KICKAPOO SPRINGS RD	CTH A	Control	.3	0.98	117		118								0.05						0.81	0
			Random	.8																			0
	CTH A	SECTION LINE	Control	.3	0.91	118		118	0.91							0.03						0.90	0
			Random	.5																			0
	SECTION LINE	HERTZ AVE	Random	.3	1.21	118	0.91	123								0.03						0.71	0
			Control	.9																			0
	HERTZ AVE	HIGHLAND AVE	Control	.3	1.41	123		125								0.03						0.62	0
			Random	1.0																			0
	HIGHLAND AVE	END WARRANTY	Random	.1	0.52	125		125	0.52							0.06						0.71	0
	Under Construction		Control	.3																			
	AVERAGE															0.04						0.72	0

* Minimum threshold is 1000 *lineal feet of cracks averaging greater than 1/2-inch in width.*

** Transverse cracking threshold is exceeded. Recorded type and number of transverse cracks: 1=14, 2=0, 3=13. This section is a 1-1/4" overlay on existing asphaltic concrete pavement. The remainder of the project is new asphaltic concrete over granular base.

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